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ABSTRACT

A set of supplemental materials for teaching grade 7 life sciences to beginning and intermediate students of English as a second language (ESL) includes an introductory section on teaching the ESL student and six instructional units. The introductory section discusses the special classroom needs and characteristics of the ESL student and provides suggestions for testing these students, a sample cloze test at two levels, specific behavioral objectives, suggestions for classroom activities and techniques, and a list of additional resources. The instructional units contain a variety of activities for teaching these topics: laboratory safety and equipment, the scientific method, the microscope and its use, the cell, plants and photosynthesis, and the frog. The activities include identification games, comprehension exercises, and several kinds of word games. (MSE)

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7TH GRADE LIFE SCIENCE UNITS

MODIFIED FOR ESOL STUDENTS -

MIDDLE SCHOOL

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Prince George's County Public Schools
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INTRODUCTION

This curriculum guide is intended to provide the middle school life science teacher with supplemental packets for teaching beginning and intermediate ESOL students. The guide contains a variety of activities to assist in developing the student's vocabulary skills, reading comprehension, writing skills, as well as a working knowledge of the life science curriculum, in order to enhance the student's ability to participate in classroom activities.

As ESOL students come from a wide variety of backgrounds and have varying English proficiency levels, they will not all progress at the same rate. Individual progress depends on the student's maturity and intelligence. Some beginning ESOL students may experience a silent phase. During this phase, although the student is very reluctant to speak, he or she is sampling vocabulary, observing classroom behavior patterns, and generally adjusting to a new situation. This silent phase does not indicate that the student is not learning.

The packets in this guide are meant to be used as supplements to the teacher's already existing materials. It is intended for, but not limited to, ESOL students.

THE ESOL STUDENT

ESOL students may have difficulty adjusting to their new environment for the following reasons:

- Students are at widely different levels of English proficiency and knowledge.
- Students may not be aware of accepted behavioral patterns within the school and classroom. This may be their first school experience.
- Students who have studied English in their own country with non-native English speaking teachers are frequently deficient in listening comprehension and speaking skills. They can often read and write far better than they can understand and communicate orally.
- Students may have difficulty making friends with American students. This tends to make them feel more isolated and compounds adjustment difficulties.
- Students may have difficulties participating in extra-curricular activities due to problems with communication and transportation or unfamiliarity with after-school programs.
- Students may come into cultural conflict with their families as they begin to make cultural adjustments at school and with American peers.
- Students may work after school limiting the time available for study.

SUGGESTIONS FOR TESTING ESOL STUDENTS

Beginning students may range from those of very little oral proficiency, who are unable to function in the spoken language to the intermediates who are able to maintain a simple face to face conversation on familiar topics.

In light of this and the likely vocabulary and reading deficiencies exhibited by ESOL students these alternative test approaches are suggested:

1. Item identification either oral and/or written, such as matching.

2. Vocabulary or sentence jumbles.

3. Multiple choice items using familiar vocabulary.

4. Oral questions requiring short answers.

5. Pictorial sequencing.

6. Cloze or Completion using familiar vocabulary.

7. Answering written questions based on readings using familiar vocabulary.

To illustrate what an ESOL student can understand when they read, unfamiliar vocabulary has been deleted in the following paragraph.

A BEGINNING ESOL STUDENT:

All _____ _____ have a _____ and an _____ to their lives. _____ their lives they grow _____ and _____. At some time, every _____ will die. The _____ of time _____ the _____ and _____ of an _____ is called the life _____. Some _____ have a life _____ of _____ a _____ hours. _____ _____ _____ live for eight years. The _____ life _____ of an American _____ is _____ sixty-seven years. An American _____ _____ to live _____. _____ have an _____ life _____ of seventy-four years.

AN INTERMEDIATE ESOL STUDENT:

All living _____ have a beginning and an end to their lives. During their lives they grow, _____ and _____. At some time, every _____ will die. This period of time between the _____ and _____ of an _____ is called the life _____. Some _____ have a life _____ of _____ a few hours. _____rabbits _____ live for eight years. The _____ life _____of an American male is about sixty-seven years. An American female _____ to live longer. Females have an _____ life _____ of seventy-four years.

The Paragraph as it appears in Focus on Life Science

All living organisms have a beginning and an end to their lives. During their lives they grow, mature, and age. At some time, every organism will die. The period of time between the birth and death of an organism is called life span. Some insects have a life span of only a few hours. The average life span of an American male is about sixty-seven years. An American female tends to live longer. Females have an average life span of seventy-four years.

OBJECTIVES

The student will be able to:

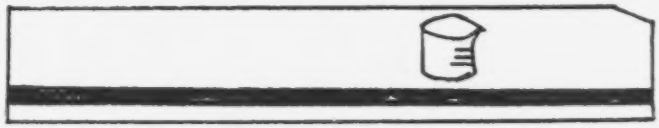
1. demonstrate proper laboratory techniques and safety procedures.
2. identify scientific equipment.
3. demonstrate correct use of scientific equipment.
4. use scientific methods in problem solving.
5. form a purpose, hypothesis, and conclusion.
6. prepare a laboratory report.
7. complete and use scientific charts and graphs.
8. identify the characteristics of living things.
9. identify the parts of a plant and an animal cell.
10. compare a plant and an animal cell.
11. identify the parts of a plant and explain the functions of each.
12. understand the process of photosynthesis.
13. identify the major organs of the digestive system and give a brief description of the functions of each.
14. perform a dissection of the frog, and name and locate the digestive organs.
15. identify a vertebrate and an amphibian.
16. identify and explain the stages of frog metamorphosis.

APPLICATIONS OF TECHNIQUES USED

The following teaching techniques have been grouped under the various skills they reinforced. Some techniques appear more than once. It is hoped this will facilitate using a variety of techniques to develop each skill.

Vocabularly Development:

- Vocabulary pictorials for identification of vocabulary items
- Blank vocabulary pictorials
- Vocabulary matching
- Words to know - giving simplified meanings
- Crossword Puzzles
- Vocabulary Word Jumbles
- Transparencies - these can be made from blank vocabulary pictorials for oral item identification and discussion of item use and/or function.
- Language Master - Put a picture on each card. Record a sentence such as:



Record: This is a beaker. (and/or)
We put liquids in a beaker.
(See Language Master Explanation)

Reading and Reading Comprehension:

- Tracking as a pre-reading skill
- Wordsearch
- Visuals with sentences
- Reading paragraphs with follow-up questions
- Multiple Choice
- Cloze or Completions
- Sequencing

Writing Skills

- Trace, Copy, Recall
- Blank Vocabulary Pictorials
- Transpositions - Ex: Change a purpose into a hypothesis
  Do plants grow in the dark?
  Yes, plants grow in the dark.
- Readings with questions
- Cloze and Completions

- Sequencing
- Transparencies for guided writing
- Dictation

Oral Practice and Listening Comprehension

- Dictation
- Reading paragraphs and questions - Tape the reading selection with questions and have the student give and/or tape an oral response.
- Transparencies for oral identification or discussion
- Language Master - see following page for explanation.

x

LANGUAGE MASTER

Often the pre/non-literate student can only participate in a part of a lesson presented to the class. In order to individualize with these students while the class moves on to reading and writing activities, the language master can be used. Having a language master in the room provides immediate reinforcement through on-the-spot recording from the day's work. Often a student assistant can record the work as it is being presented. i.e., teacher introduces new vocabulary item and student records it on the card. The following are areas of instruction which lend themselves to language master use:

1. Word recognition: A student reads the word/sentence printed on the card, then checks with recorded model.

2. Context clues: An incomplete sentence requiring only one suitable word is printed on the card. The student completes the sentence and checks with the recorded model.

3. Dictation of words or sentences: An incomplete sentence or the appropriate number of blanks are written on a card. Answers to the dictation can be on the back of the card.

4. Listening Comprehension: Dialogues or very short narratives are recorded, one line or sentence per card. Cards are scrambled. Students listen and then put the cards in order. (Teacher must provide correct model on card.)

5. Matching exercises: A word with several synonyms to choose from is written on the card. Students select a response and record on student track, and then listen to the instruction track for the correct answer.

6. Matching pictures to words: A picture is either drawn on or glued to the card. Students identify and then listen to the answer. A written answer can be found on the back of the card. (The student can hear the correct answer on the instructor track - correct his/her pronunciation on the student track, and also have the word reinforced visually by the written answer on the back of the card.)

NOTE: Cards are available from the ESOL Office.

Dialogues are used in the ESOL classroom as models of correct speech incorporating structures that are necessary in a specific unit of study. Correct pronunciation and intonation is practiced as new vocabulary and structures are introduced. Dialogues provide an excellent way for students to practice English and provide a take off point for writing/creating their own dialogues and presenting them to the class.

Pedro: "What are the parts of a cell?"

Carmen: "I don't know. Let's ask Mrs. Jones."

Pedro: "Mrs. Jones. The parts of a cell are the nucleus, the vacuole, the cytoplasm, and a cell membrane."

Mrs. Jones: "Yes, those are the parts of an animal cell."

Carmen: " A plant cell is the same, isn't it?"

Pedro: "No a plant cell has chloroplasts and a cell wall. Isn't that right Mrs. Jones?"

Mrs. Jones: "Yes, that's right. Very good Pedro."

RESOURCES

1. Bernstein, Leonard, Martin Schachter, Alan Winkler and Stanley Wolfe. Concepts and Challenges in Science. Fairfield, New Jersey: Cebco Standard Publishing, 1979.

2. Bobrowsky, Kenneth. The Living Scene. New York: SBS Scholastic Book Services, 1971.

3. Heimler, Charles H. Lucy Daniel and J. David Lockard. Focus on Life Science. Columbus, Ohio: Charles E. Merrill Publishing Company, 1984.

4. Richmond, Jean. The IDEA Science Program Life Science. Austin, Texas: Steck-Vaughn Company, 1976.

5. Rosen, Seymour. Biology Workshop - 1. New York, New York: Learning Trends. A Division of Globe Book Company, Inc., 1976.

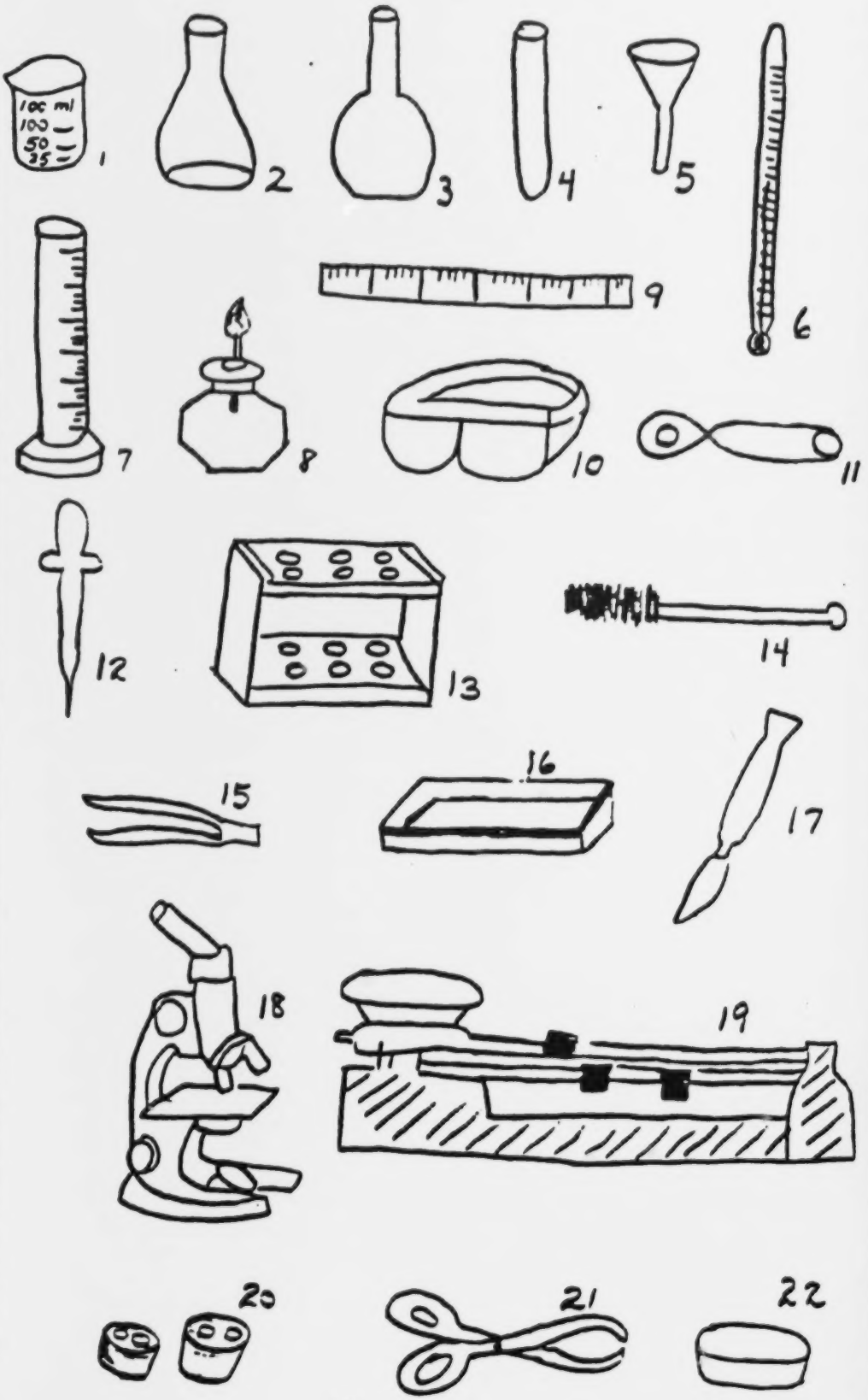
UNIT 1

ACTIVITIES FOR TEACHING LABORATORY SAFETY AND EQUIPMENT

NAME _____ DATE _____

SUBJECT _____ PER. _____

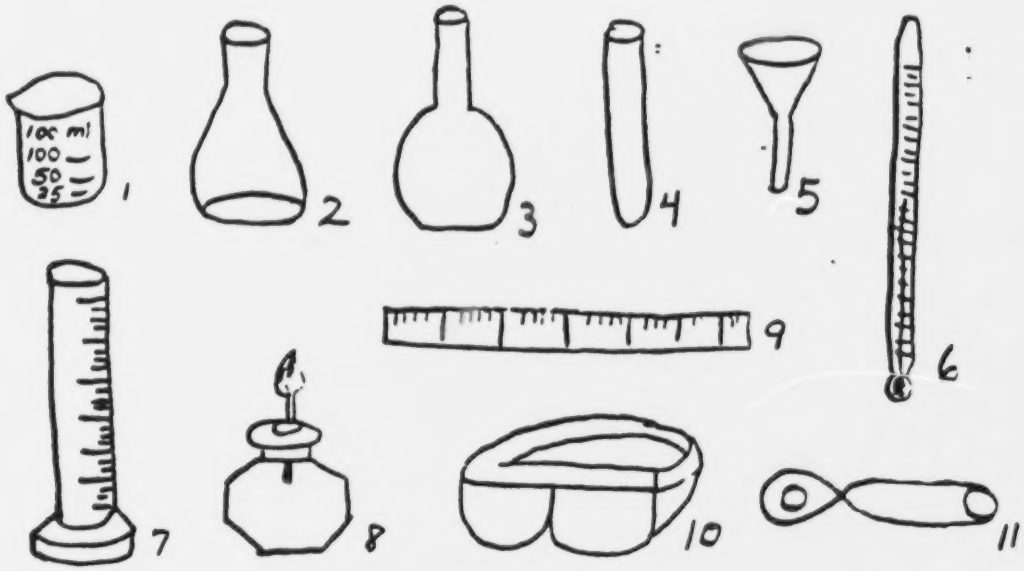
1.	beaker
2.	Erlenmeyer flask
3.	Florence flask
4.	test tube
5.	funnel
6.	thermometer
7.	graduated cylinder
8.	alcohol burner
9.	metric ruler
10.	goggles
11.	test tube holder
12.	dropper
13.	test tube rack
14.	test tube brush
15.	forceps
16.	dissecting pan
17.	scalpel
18.	microscope
19.	balance
20.	rubber stoppers
21.	tongs
22.	Petri dish



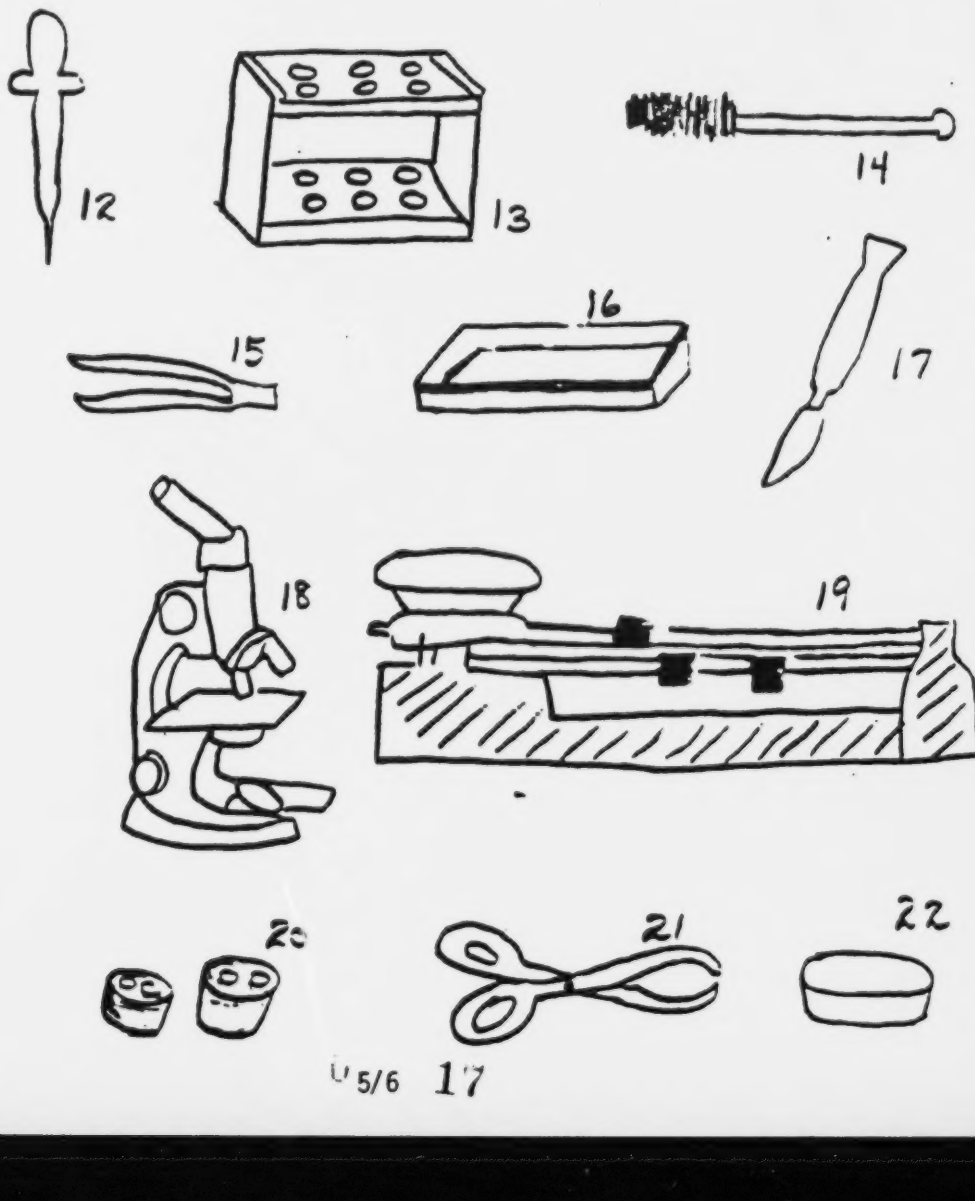
NAME _____ DATE _____

SUBJECT _____ PER. _____

Suggested activity: Cut these pictures and use them with the LANGUAGE MASTER.



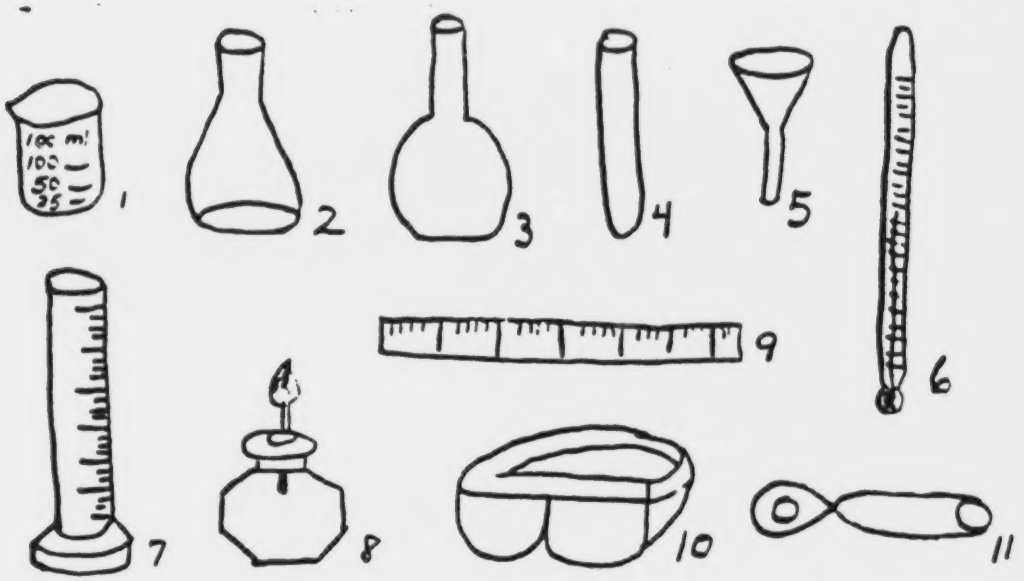
Use sentences like: This is a test tube holder. It holds a test tube.



NAME _____ DATE _____

SUBJECT _____ MOD _____

EQUIPMENT MATCH



Directions: Put the number of the picture next to its name.

_____ Florence flask

_____ test tube

_____ alcohol burner

_____ funnel

_____ beaker

_____ graduated cylinder

_____ goggles

_____ test tube holder

_____ metric ruler

_____ Erlenmeyer flask

_____ thermometer

Date _____ Name _____

Subject _____ Unit _____

Assignment _____

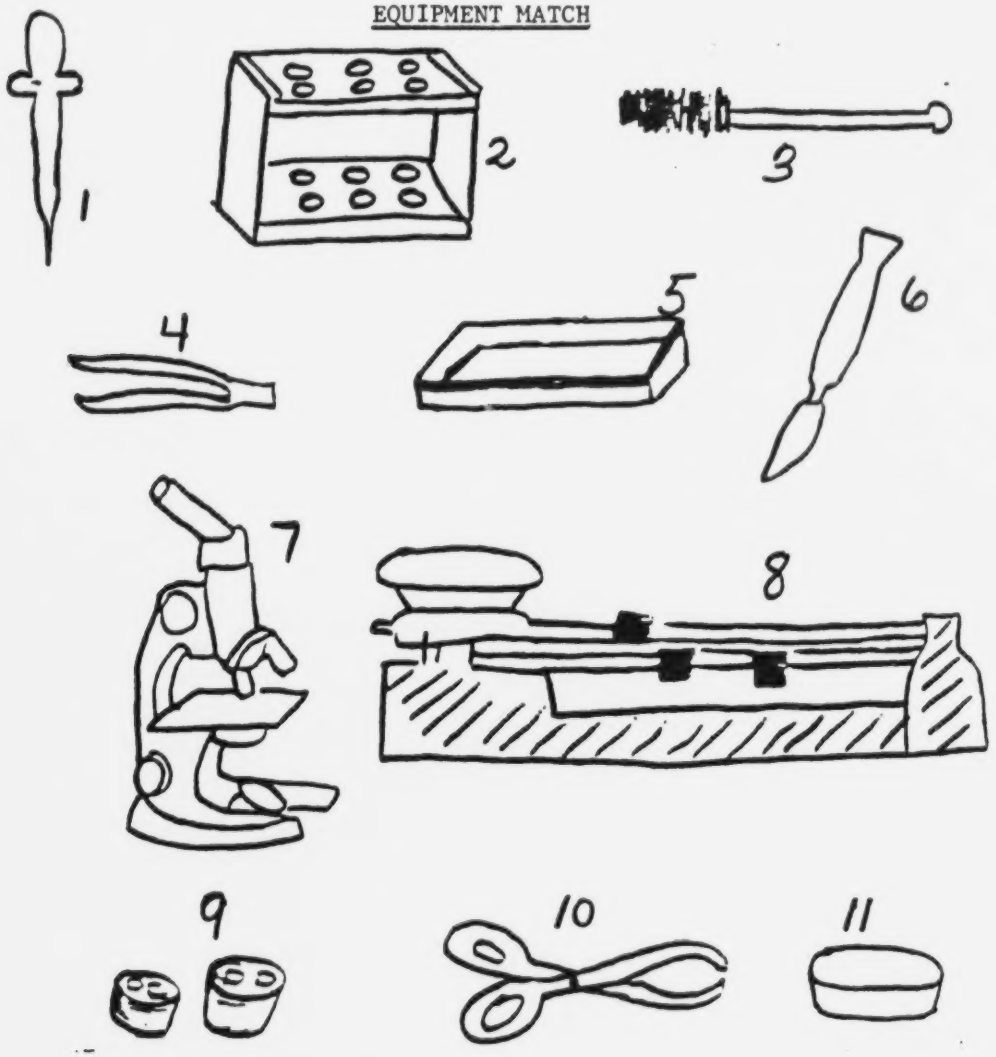
TRACE	COPY	RECALL
1 beaker		1
2 flask		2
3 test tube		3
4 funnel		4
5 thermometer		5
6 cylinder		6
7 ruler		7
8 goggles		8
9 holder		9
10		10

3/8 Inch

NAME _____ DATE _____

SUBJECT _____ MOD _____

EQUIPMENT MATCH



Directions: Put the number of the picture next to its name.

_____tongs

_____scalpel

_____microscope

_____test tube rack

_____dropper

_____forceps

_____balance

_____dissecting pan

_____rubber stoppers

_____Petri dish

_____test tube brush

Date _____ Name _____

Subject _____ Unit _____

Assignment _____

TRACE	COPY	RECALL
1 dropper		1
2 rock		2
3 torch		3
4 tongs		4
5 pan		5
6 scalpel		6
7 microscope		7
8 balance		8
9 stopper		9
10 forceps		10
11 dish		

13/14

3/8 inch

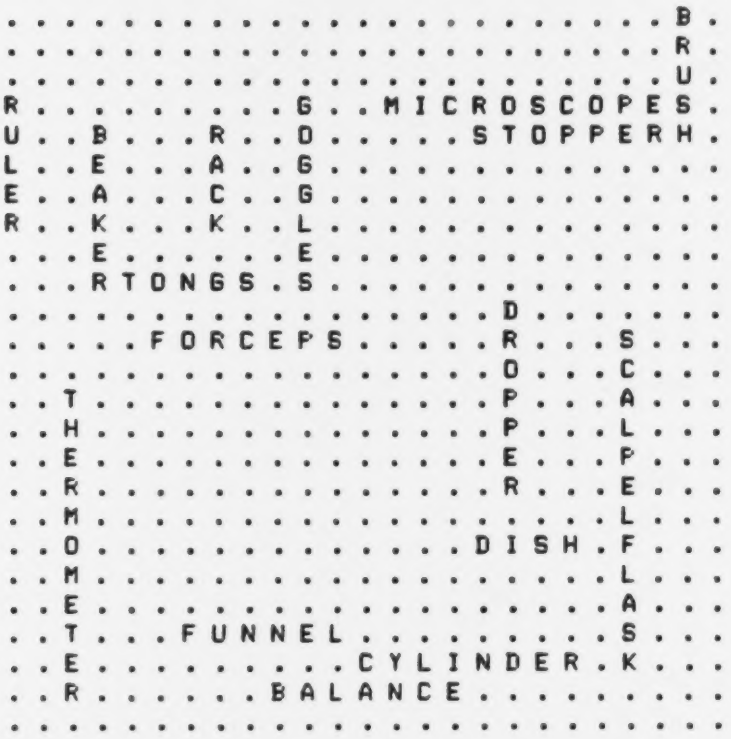
LAB EQUIPMENT WORDSEARCH

J L U N V G C H Z V O K M I C U Y L D N X U O B F
V G Z Y N U C L L A Q T N R Y G R V W E R W L R G
U H A U X M W E M E M O L T A E U J C K X J S U S
R Z M M R D O A Q A G X H M I C R O S C O P E S F
U T U B I K I R A R O R W W H U S T O P P E R H J
L U C E I D N A Y Q G U W Q W X X G O V H I L X G
E T U A O K J C E F G H J L F M C F I W E H F M E
R C W K T U L K V Q L J K I V D Q I X Y Y E U N Z
S C H E I U P K K B E G S G N H G T H S L W B C R
I V X R T O N G S L S D J A L L M V A V A E Z R Z
C J D G J E E G N C A M G O Q L R D H M F S M C V
R T M K R F O R C E P S N G W A U R T F S S L L E
Q Q J S O N P G K R C Q A L R D P O I K I C N U P
M T T U P Y Y S H Q H U D C T J O P P R F A Y E X
A D H O A W E R V F A J E E R N A P Z V U L C S V
D W E L E E N U O P E R R O K S J E O E A P Z I W
Y B R P V W K L Z U P J O E V R G R N U D E F S S
E F M C Q U O T G Y L T L V V T S D L A U L M T D
A Q O M Z Q Z I N A G V B R X E D I S H Y F C J T
J S M A Y X B U H P M M I H K N G O S T S L C D X
T M E X X F Q J R S F Z X G L M Y R J G H A X J M
G U T Y P K F U N N E L J I T Q S M F G I S A U Y
F U E W T F F O A B I Q C Y L I N D E R P K O S M
A O R J Z Q P L R B A L A N C E E A Y O C H U N Y
I Z E R T R B M N W V E I X P H T W E R U L P T T

WORDS

BEAKER
THERMOMETER
GOGGLES
BRUSH
MICROSCOPE
TONGS
FLASK
CYLINDER
DROPPER
FORCEPS
BALANCE
DISH
FUNNEL
RULER
RACK
SCALPEL
STOPPER

LAB EQUIPMENT WORDSEARCH ANSWER KEY



SAFETY RULES

NAME _____ DATE _____

SCIENCE SAFETY RULES

1. Know what to do. Study the procedure before doing the experiment.

2. Wear goggles and aprons when you are working with chemicals or are in the laboratory.

3. Only use chemicals from containers that are clearly labeled.

4. Use chemicals carefully. Keep chemicals away from your eyes, ears, nose, mouth and clothing.

5. Wipe all spills with a damp paper towel.

6. Put all waste materials in the proper container.

7. Clean your work area.

8. Wash your hands at the end of each laboratory period.

9. IN CASE OF ACCIDENT, TELL THE TEACHER IMMEDIATELY.

PARENT'S SIGNATURE _____

DATE _____

K N O W

W H A T

T O

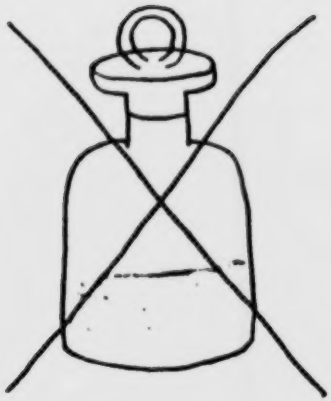
D O!

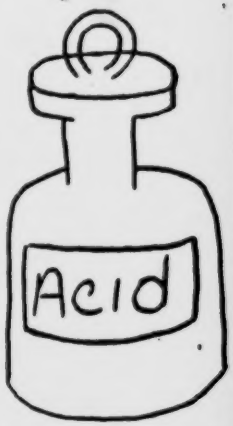
USE CHEMICALS

FROM CONTAINERS THAT

ARE CLEARLY LABELED.

25/26





PUT WASTE

MATERIALS IN THE

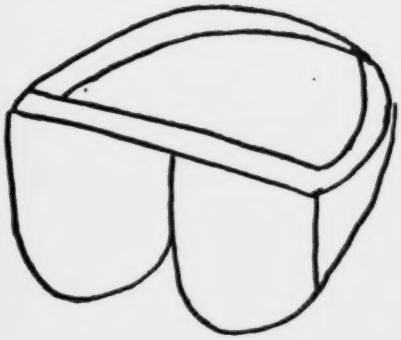
PROPER CONTAINER

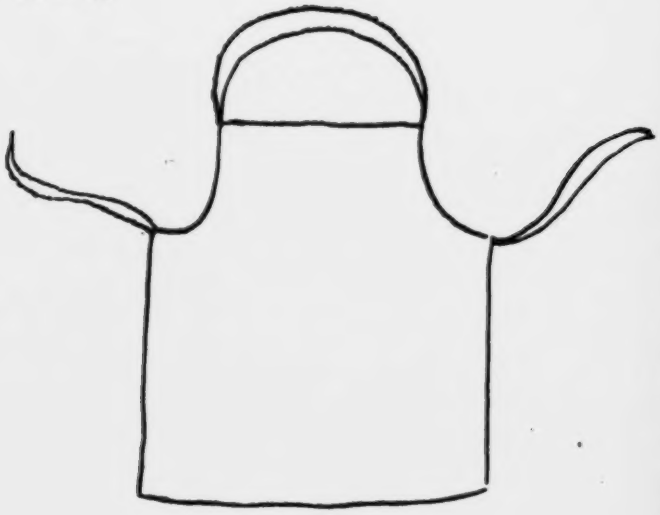
WASH YOUR HANDS

29/30

WEAR GOGGLES

AND APRON

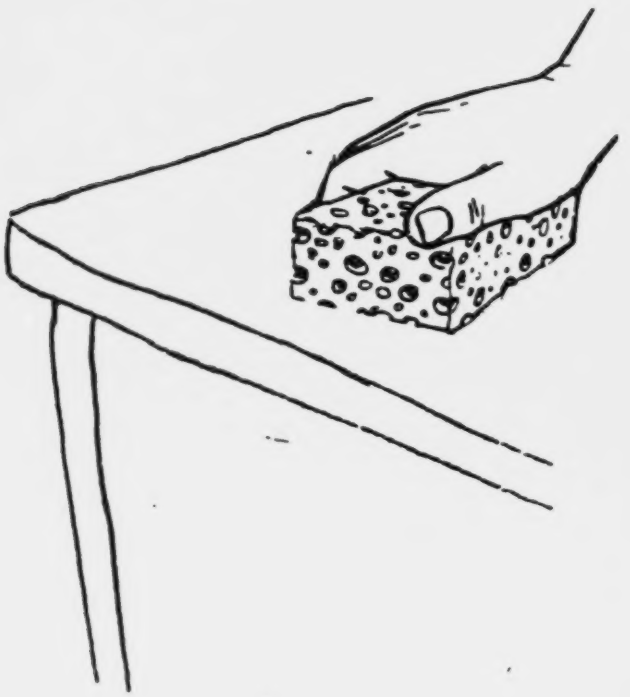




CLEAN YOUR

WORK AREA

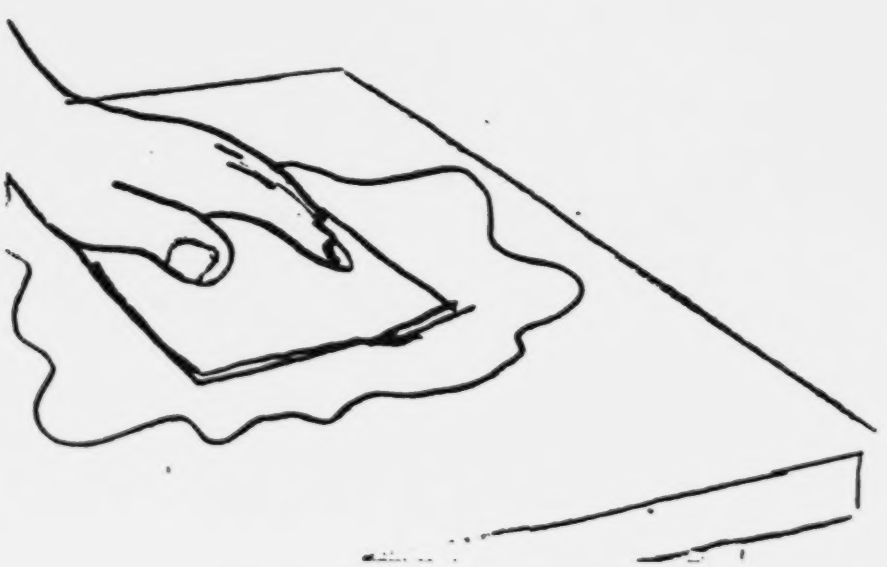
AND



WIPE ALL SPILLS

WITH DAMP PAPER

TOWELS.



KEEP CHEMICALS

AWAY FROM YOUR

EYES

EARS

NOSE

MOUTH

AND

CLOTHING

SCIENCE SAFETY

Science safety is very important. Always know the procedure before you do an experiment. Wear goggles and an apron when you are working. Use chemicals carefully. Keep them away from your eyes, ears, nose, mouth and clothing.

Keep your work area clean. Wipe all spills with a damp paper towel and put all waste materials in the proper container. Be sure to wash your hands at the end of each laboratory period.

Answer the following questions in a complete sentence.

1. What is important?
2. What should you know before you do an experiment?
3. What should you wear when you are working?
4. What should you keep away from your eyes, ears, nose, mouth and clothing?
5. How should you wipe up all spills?
6. Where should you put all waste materials?
7. What should you do at the end of each laboratory period?

CLOZE-SCIENCE SAFETY

Science safety is very important. Always know the _____ before you do an _____. Wear goggles and an _____ when you are working. Use _____ carefully. Keep them away _____ your eyes, ears, nose, _____ and clothing.

Keep your _____ area clean. Wipe all _____ with a damp paper _____ and put all waste _____ in the proper container. Be sure to wash your hands at the end of each laboratory period.

39/40

ACTIVITIES FOR TEACHING

THE SCIENTIFIC METHOD

UNIT II SCIENTIFIC METHOD

SUGGESTED LABORATORY ACTIVITIES

1. At the beginning of the Scientific Method Unit do the Suggested Controlled - Variable demonstration having students record growth data each day to be used in the data and observation chart later in the unit.

2. Introducing Classification

   Book: "Focus on Life Science" by Merrill

   Page: 24

   Activity: How are Classification Systems Developed?

THE SCIENTIFIC METHOD (WRITING A LAB REPORT)

Words to know:

1) Title	3) Hypothesis	5) Procedure
2) Purpose	4) Materials	10) Conclusions
6) Controlled	8) Results	
7) Variable	9) Data	

---

1. Title: The title is the name of a laboratory or experiment

   Example: Plant Growth

---

2. Purpose: The purpose tells why you do the experiment. It can be a question or a statement.

   Example: 1) Do plants need water to grow?

   2) To see if plants need water to grow.

---

3. Hypothesis: The hypothesis is what you think will happen. It is a yes or no statement.

   Example: Yes, plants need water to grow.

---

4. Materials - Materials are the things you use.

   Plants and water are materials.

---

5. Procedure: The procedure is what you do.

---

6. Control: A Control is something that does not change.

---

7. Variable: A variable is something that can change.

---

8. Results and Observations: The results are what you see happen.

---

9. Data: Data is information. It is what you write about what happens.

---

10. Conclusion: A conclusion tells if your hypothesis is true or not true.

Example: Yes, my hypothesis is true. Plants need water to grow.

No, my hypothesis is not true. Plants do not need water to grow.

Date _____ Name _____

Subject _____ Unit Scientific Method

Assignment _____

TRACE	COPY	RECALL
1 title		1
2 purpose		2
3 hypothesis		3
4 materials		4
5 procedure		5
6 control		6
7 variable		7
8 results		8
9 data		9
10 conclusions		10

3/8 inch

Activity I - Identifying the purpose and the conclusion.

Read each set of words and put a P for the purpose and a C for the conclusion.

Example:

__P__ Do plants need air to grow?

__C__ Plants need air to grow.

1. _____ Do plants grow in the dark?

   _____ Plants grow in the dark.

2. _____ Plants grow in the cold.

   _____ Do plants grow in the cold?

3. _____ Is there water in a potato?

   _____ There is water in a potato.

4. _____ Does light change the size of the dark spot of your eye?

   _____ Light changes the size of the dark spot of your eye.

5. _____ Seeds need water to grow.

   _____ Do seeds need water to grow?

Activity II - Writing a Purpose

Rewrite each purpose as a statement.

Title: Do plants grow in the dark?

Purpose: To see if plants grow in the dark.

1. Do plants grow in the cold?

   Purpose: To see if _____

2. Is there water in a potato?

   Purpose: _____

3. Does light change the size of the dark spot of your eye?

   Purpose: _____

4. Do seeds need water to grow?

   Purpose: _____

5. Do plants need water to grow?

   Purpose: _____

Activity III - Writing a hypothesis

Rewrite each purpose as a hypothesis.

Example: Do plants grow in the dark?

Hypothesis: Yes, plants grow in the dark

or

No, plants do not grow in the dark.

1. Do plants grow in the cold?

   Hypothesis: No, _____

   _____

2. Is there water in a potato?

   Hypothesis: Yes, _____

   _____

3. Does light change the size of the dark spot of your eye?

   Hypothesis: _____

   _____

4. Do seeds need water to grow?

   Hypothesis: _____

   _____

5. Do plants need water to grow?

   Hypothesis: _____

   _____

Activity IV - Writing a conclusion.

Rewrite each hypothesis as a conclusion using:

Yes, my hypothesis is true.

Plants need water to grow.

OR

No, my hypothesis is false. Plants do not need water to grow.

Example:

Hypothesis: Yes, plants need water to grow.

Conclusion: Yes, my hypothesis is true. Plants need water to grow.

Hypothesis: No, plants do not grow in the cold.

Conclusion: No, my hypothesis is not ture. Plants do grow in the cold.

1. No, plants don't grow in the dark.

_____

_____

2. Yes, there is water in a potato.

_____

_____

3. Yes, light changes the size of the dark spot of your eye.

_____

_____

4. Yes, seeds need water to grow.

_____

_____

5. No, there is no water in a potato.

_____

_____

Activity V - The Scientific Method

Write the steps of the Scientific Method in Order

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____

The steps of the Scientific Method:

Purpose	Title	Hypothesis
Conclusions	Results	Procedure
Materials		

THE SCIENTIFIC METHOD

When scientists ask a question, they think of a possible answer. This answer is called a hypothesis. Then they do an experiment and write down the results. If the hypothesis is not true (false), they may want to make a new hypothesis and test it. This way of solving a problem is called the scientific method.

Complete these sentences:

1. A hypothesis is _____

   _____

2. When you do an experiment, you write down _____

   _____

3. If the hypothesis is false you may _____

   _____

4. A way of solving a problem is called the _____

   _____

COMPLETION - SCIENTIFIC METHOD

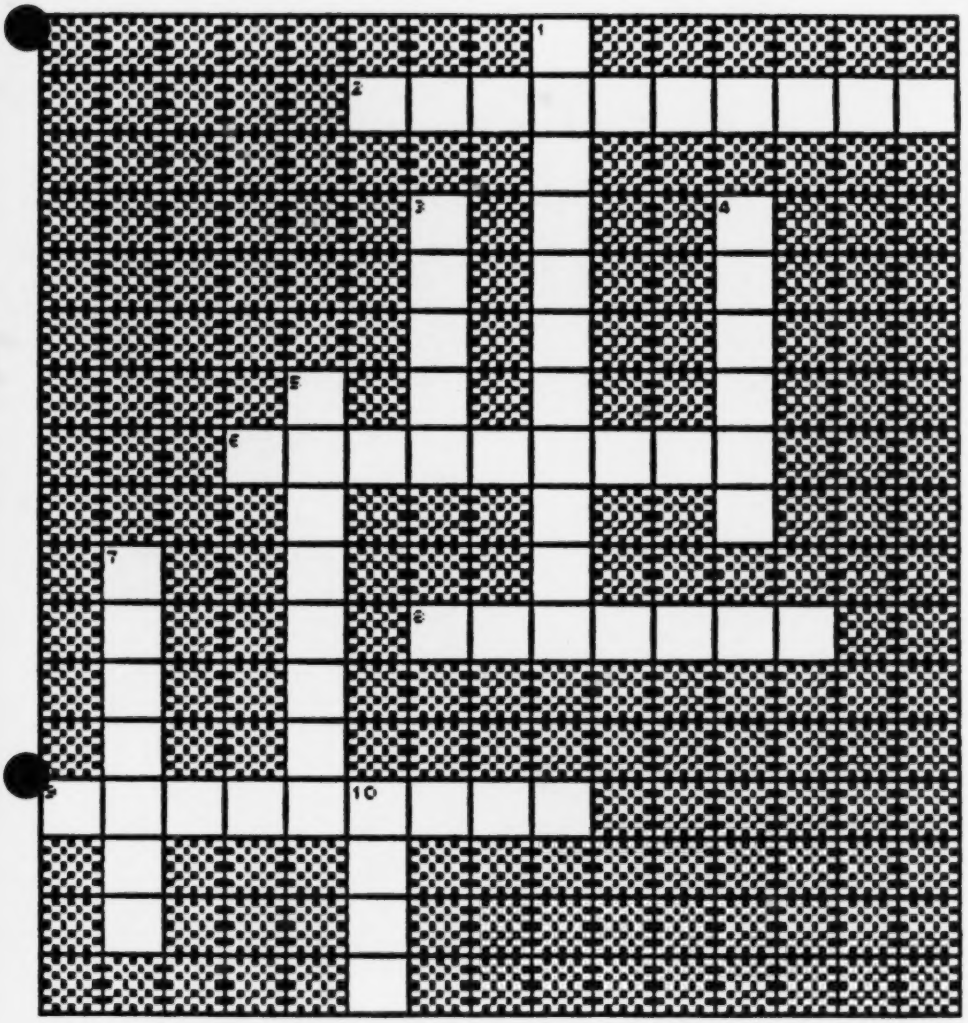
Complete with a correct word from the word list.

When scientists ask a _____ they think of a possible _____. This answer is called a _____. Then they do an _____ and write down the _____. If the hypothesis is not _____ (false), they may want to _____ a new hypothesis and _____it. This way of _____ _____ a problem is called the _____ method.

WORD LIST:

1. experiment
2. make
3. question
4. scientific
5. true
6. solving
7. results
8. test
9. answer
10. hypothesis

SCIENTIFIC METHOD



ACROSS CLUES

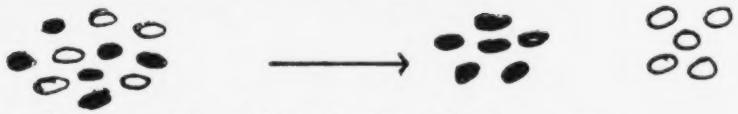
2. The ---------- is what you think will happen.
6. --------- are the things you use.
8. The ------- are what you see happen.
9. The --------- is what you do.

DOWN CLUES

1. A ---------- tells if the hypothesis is true or not true.
3. The ----- is a problem. It is a question.
4. The ------- tells why you answer the title question.
5. A --------- is something that changes.
7. A ------- is something that does not change.
10. The ---- is the information. It is what you write about what happens.

Laboratory Words to Know

1. Classify - to put in groups

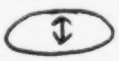


2. Color - red, white, brown, black, green

3. Shape - the outside form of a thing

4. Length - how long something is.

5. Width - how wide something is.



6. thickness - how fat or thin a thing is.

7. Texture - how something feels.

bumpy

smooth

NAME _____

DATE _____

Title: Classification Systems

Purpose: To learn how to classify.

Hypothesis: The seeds can be classified many ways.

Materials:

a hand lens

a metric ruler

a packet of mixed seeds

2 sheets of paper

a pencil

Procedure:

1. Put the seeds on a sheet of paper.
2. Look at the seeds.
3. Write or draw the length, width, thickness, color, shape, and texture of the seeds on the data chart.
4. Classify the seeds. (Put the seeds into groups.)

RESULTS:

DATA CHART

SEEDS	COLOR	SHAPE	LENGTH	WIDTH	THICKNESS	TEXTURE
1.						
2.						
3.						
4.						
5.						

CONCLUSIONS:

1. Was the hypothesis true?

2. Name the way you classified the seeds.

NAME _____ DATE _____

SUBJECT _____ MOD _____

Directions: Looking at your laboratory report, answer the questions.

1. What is the title?

2. What is the purpose?

3. What is the hypothesis?

4. What comes after the hypothesis?

5. How many steps are in the procedure?

6. Where do you write the results?

7. What are the conclusions?

ACTIVITIES FOR TEACHING PARTS OF THE MICROSCOPE AND ITS USE

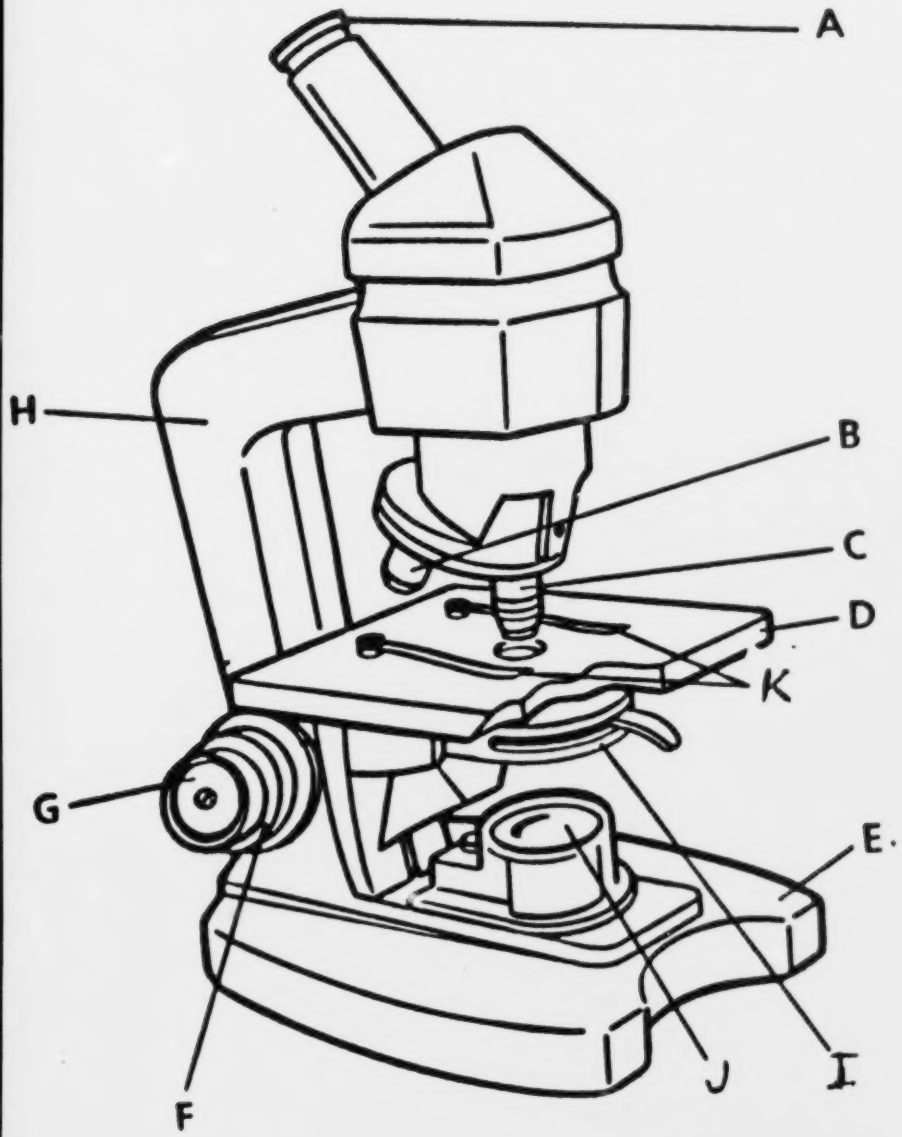
PARTS OF THE MICROSCOPE

1. Eyepiece - The lens you look through.
2. Body tube - The tube between the eyepiece and the lens.
3. Arm - It holds the body tube and lenses. The arm is used to carry the microscope.
4. Nosepiece - It is at the bottom of the body tube. It holds the lenses. It can be rotated (turned).
5. High-Power Objective - The long lens on the nosepiece. It magnifies 40X.
6. Low-Power Objective - The short lens on the nosepiece. It magnifies 10X.
7. Coarse adjustment - It moves the body tube up and down.
8. Fine adjustment - It makes the image look sharp.
9. Stage Clips - They hold the slide.
10. Stage - It is where you put the slide.
11. Diaphragm - It is under the stage. It lets more or less light into the body tube.
12. Lamp - The light for the microscope.
13. Base - The bottom of the microscope.

WORDS TO KNOW

1. Rotate - turn.
2. Magnify - to make something look bigger.
3. Lens - a glass that makes something look bigger.
4. Focus - to make something look sharp.
5. Image - what you see.
6. Sharp - easy to see, clear.
7. Slide - a piece of glass with something on it.

PARTS OF THE MICROSCOPE



A. EYEPIECE

B. LOW-POWER OBJECTIVE

C. HIGH-POWER OBJECTIVE

D. STAGE

E. BASE

F. COARSE ADJUSTMENT

G. FINE ADJUSTMENT

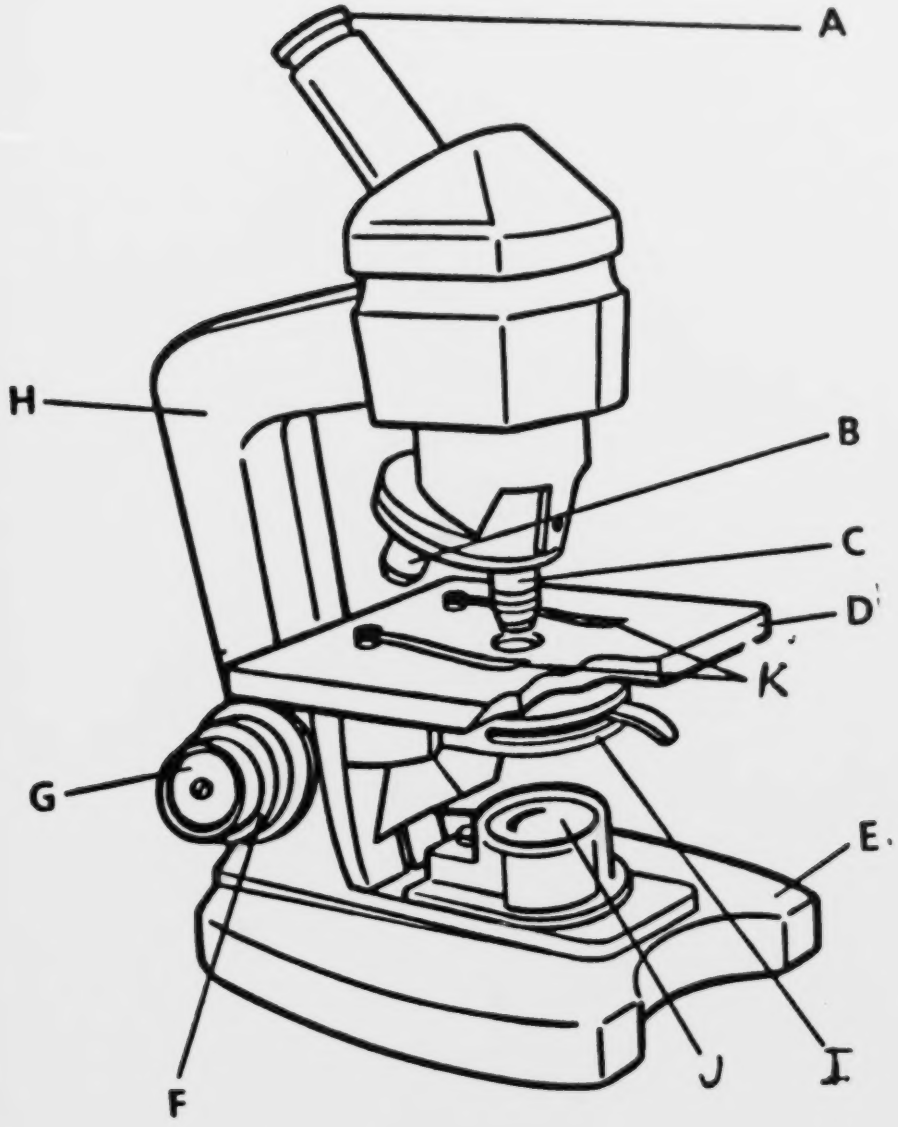
H. ARM

I. DIAPHRAGM

J. LAMP

K. STAGE CLIPS

PARTS OF THE MICROSCOPE



A. _____

B. _____

C. _____

D. _____

E. _____

F. _____

G. _____

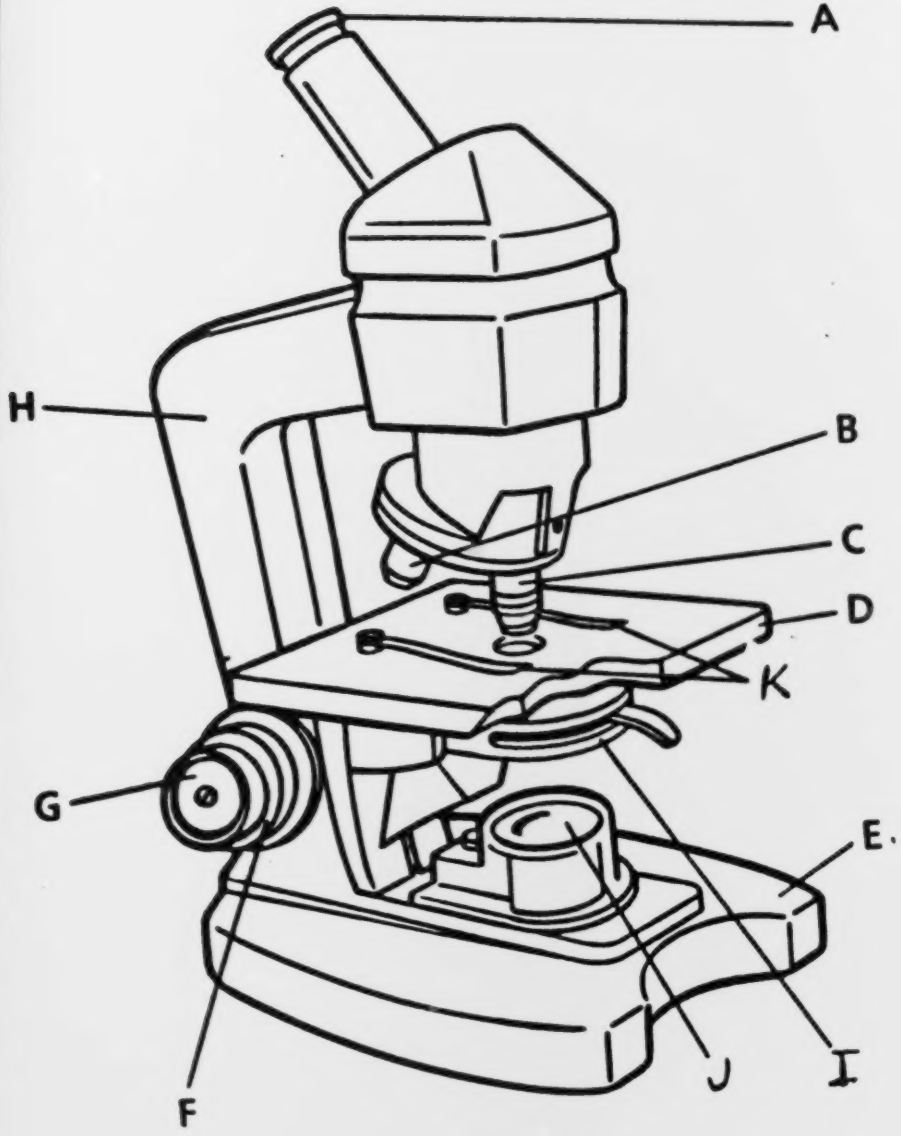
H. _____

I. _____

J. _____

K. _____

PARTS OF THE MICROSCOPE



DIRECTIONS: Put the letter of each microscope part next to its name.

____ BASE

____ DIAPHRAGM

____ LAMP

____ EYEPIECE

____ LOW-POWER OBJECTIVE

____ ARM

____ FINE ADJUSTMENT

____ STAGE CLIPS

____ HIGH-POWER OBJECTIVE

____ COARSE ADJUSTMENT

____ STAGE

NAME _____ DATE _____

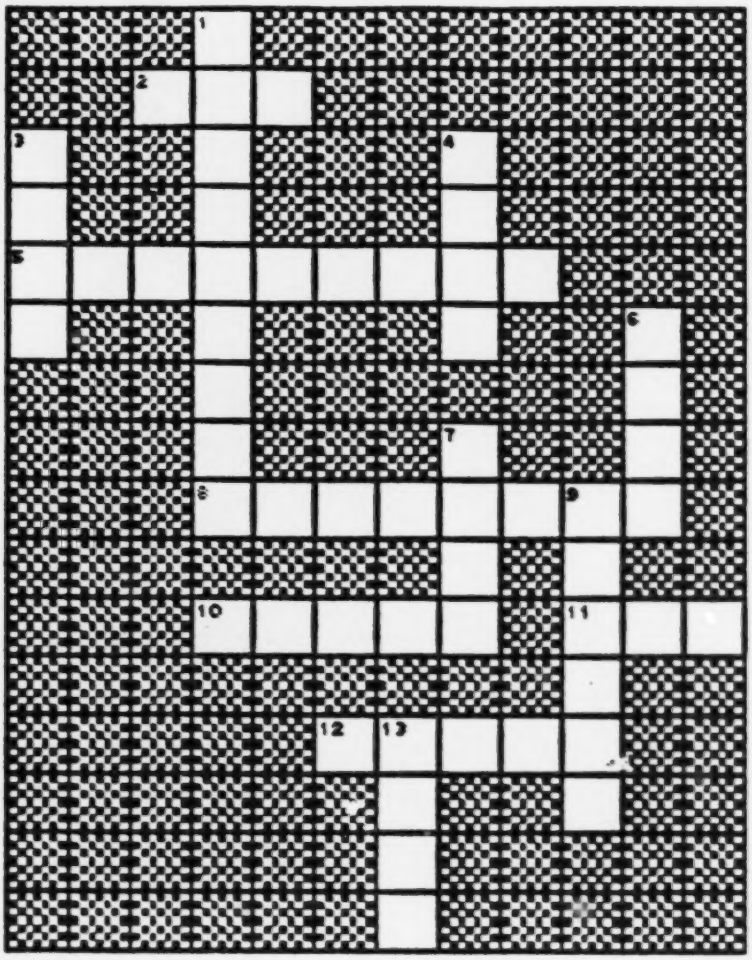
SUBJECT _____ MOD _____

TRACK FOR THE FOLLOWING VOCABULARY WORDS

	Tracking	(T)	X	Y	(R)	Z	(A)	E	F	(C)	G	H	(K)	J	K	(I)	L	(N)	M	O	P	(G)	Q	R	S	T	U
1.	microscope	G	M	F	I	E	D	C	B	R	A	O	Z	S	Y	X	C	W	O	V	P	U	T	E	S	R	Q
2.	stage	L	V	S	C	D	E	T	V	U	A	R	S	G	H	I	E	J	K	L	M	N	O	P	W	B	R
3.	base	A	B	C	D	E	F	G	A	V	D	S	O	P	E	W	T	S	R	V	S	Y	O	E	T	U	H
4.	arm	P	T	B	A	S	T	U	W	L	R	Z	W	X	L	M	N	O	P	C	B	S	G	O	L	K	M
5.	diaphragm	D	O	P	I	V	W	A	N	P	Z	H	Q	R	Y	A	S	G	M	B	M	D	F	Q	L	N	E
6.	lamp	X	A	C	L	B	D	E	F	A	L	H	M	I	E	P	R	M	A	N	E	F	I	E	D	C	G
7.	stage clips	A	S	V	N	T	O	A	P	R	G	E	U	W	C	A	L	Z	I	P	D	M	J	Q	S	T	U
8.	eyepiece	O	E	U	Y	T	V	E	W	R	P	X	I	L	E	N	C	A	E	C	T	J	T	X	Y	R	E
9.	objectives	C	D	O	E	F	B	G	H	J	K	E	L	C	M	T	I	V	O	E	S	K	L	M	D	L	M
10.	lens	W	P	T	L	A	B	C	E	X	Y	N	Z	Q	S	R	T	L	F	B	C	T	M	F	O	P	Q

98/58

THE MICROSCOPE



ACROSS CLUES

2. THE --- POWER OBJECTIVE IS THE SHORT LENS ON THE NOSEPIECE
5. THE --------- IS UNDER THE STAGE. IT LETS LIGHT INTO THE BODY TUBE.
8. THE -------- IS THE LENS YOU LOOK THROUGH.
10. THE ----- IS WHERE YOU PUT THE SLIDE.
11. THE --- HOLDS THE BODY TUBE AND LENSES. YOU USE THE --- TO CARRY THE MICROSCOPE.
12. THE STAGE ----- HOLD THE SLIDE.

DOWN CLUES

1. THE --------- IS AT THE BOTTOM OF THE BODY TUBE. IT HOLDS THE LENSES.
3. THE ---- TUBE IS THE TUBE BETWEEN THE EYEPIECE AND THE LENSES.
4. THE ---- POWER OBJECTIVE IS THE LONG LENS ON THE NOSEPIECE.
6. THE ---- IS THE BOTTOM OF THE MICROSCOPE.
7. THE ---- ADJUSTMENT MAKES THE IMAGE LOOK SHARP.
9. THE ------ ADJUSTMENT MOVES THE BODY TUBE UP AND DOWN.
13. THE ---- IS THE LIGHT FOR THE MICROSCOPE.

SWERS: THE MICROSCOPE

CHOOSE THE CORRECT ANSWER:

1. Who is carrying the microscope the right way?

   A. The boy is.

   B. The girl is.

2. Always carry the microscope with:

   A. one hand.

   B. two hands.

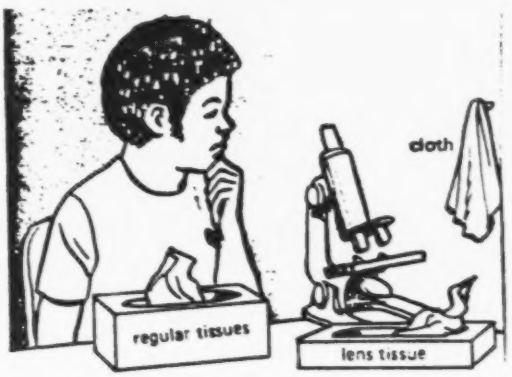
---

3. The boy should clean the microscope lenses with:

   A. a cloth.

   B. regular tissues.

   C. lens tissue.



4. The slide cracked because the the girl was:

   A. focusing down.

   B. focusing up.

5. She should focus first with:

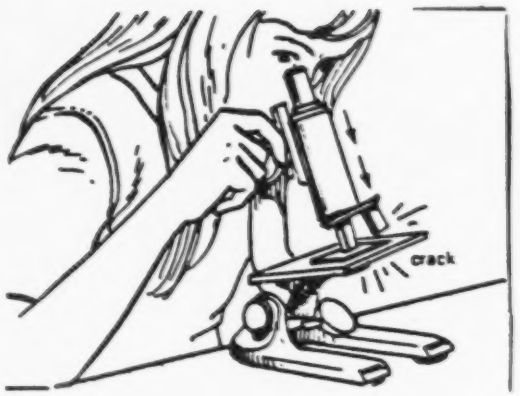
   A. the fine adjustment

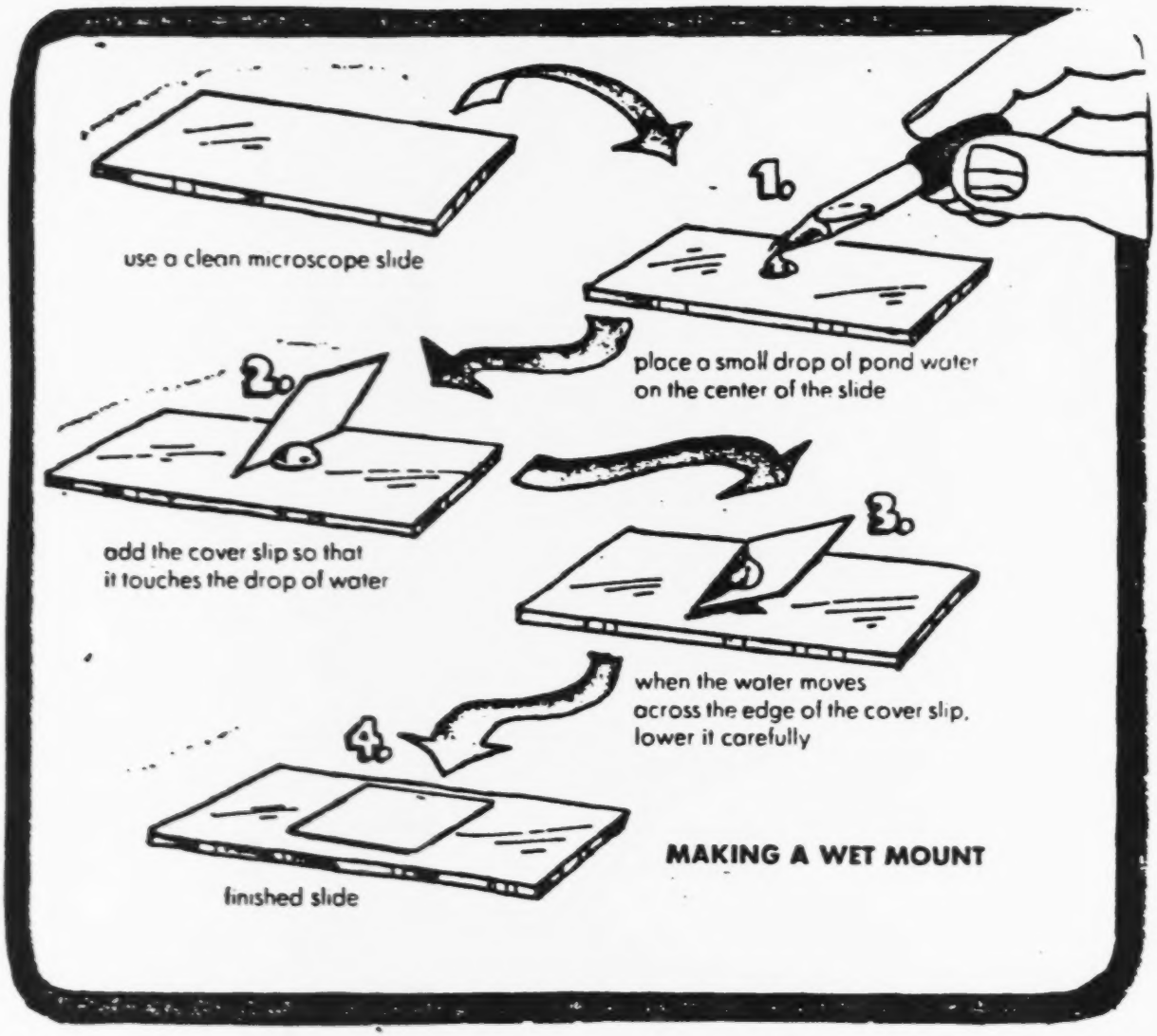
   B. the coarse adjustment.

6. She should focus with:

   A. the coarse adjustment and the high-power objective lens.

   B. the coarse adjustment and the low-power objective lens.




use a clean microscope slide
1.
place a small drop of pond water on the center of the slide
2.
add the cover slip so that it touches the drop of water
3.
when the water moves across the edge of the cover slip, lower it carefully
4.
finished slide
MAKING A WET MOUNT

From Concepts and Challenges in Life Science. 1979 CEBCO Standard Publishing

NAME _____ DATE _____

SUBJECT _____ MOD _____

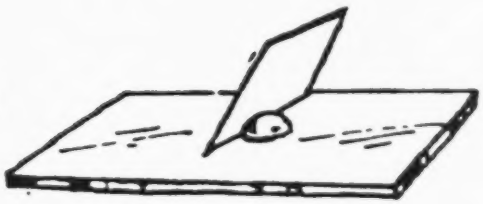
MAKING A WET MOUNT SLIDE

DIRECTIONS: Look at these pictures and then write the steps in the correct order.

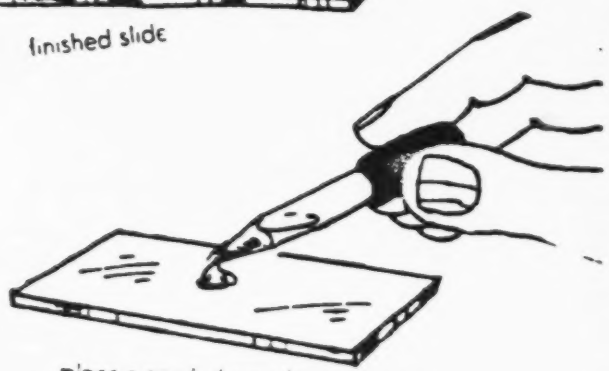
when the water moves across the edge of the coverslip, lower it carefully

use a clean microscope slide

finished slide



add the cover slip so that it touches the drop of water



place a small drop of pond water on the center of the slide

STEPS:

1. _____

2. _____

_____

3. _____

4. _____

_____

5. _____

ACTIVITIES FOR TEACHING

THE CELL

CELL THEORY

Scientists have many ideas about plant and animal cells. These ideas are called Cell Theory. Cell Theory tries to explain how plant and animal cells function. It states:

1. All living things are made of cells.
2. Cells carry on life functions.
3. Cells divide to produce new cells.

QUESTIONS:

1. What are ideas about cells called?
2. What does Cell Theory try to explain?
3. What are all living things made of?
4. Do cells carry on life functions?
5. How do cells produce new cells?

PARTS OF A CELL

1. The Nucleus - The nucleus is near the middle of the cell. It is the most important part of the cell. If the cell nucleus is removed (taken out) the cell will die.

2. The Cytoplasm - The cytoplasm is the material around the nucleus.

3. The Vacuoles - The vacuoles are small round spaces in the cytoplasm. They hold water and other materials.

4. The Cell Membrane - The cell membrane is the thin outer skin of the cell. It controls the movement into and out of the cell.

5. The Protoplasm - The protoplasm is the living material of a cell. THE LIVING PARTS OF A CELL ARE THE NUCLEUS, THE CYTOPLASM AND THE CELL MEMBRANE.

6. The Cell Wall - ONLY PLANT CELLS HAVE A CELL WALL. The cell wall is outside of the cell membrane. It protects and shapes the cell. The cell wall is hard material called cellulose. Wood is made of cellulose.

7. The Chloroplasts - ONLY PLANT CELLS HAVE CHLOROPLASTS. Chloroplasts contain (hold) chlorophyll.

8. Chlorophyll - Chlorophyll is green and it makes the plant look green. Chlorophyll helps the plant make food.

Date _____ Name _____

Subject/Mod _____ Title _____

_____ Assignment Dictation

Ideas about cells are called Cell Theory. Cell theory states that:

1. All living things are made of cells.

2. Cells carry on life functions.

3. Cells divide to produce new cells.

Date_____ Name _____

Subject/Mod_____ Title _____

_____ Assignment Dictation _____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

X _____

_____

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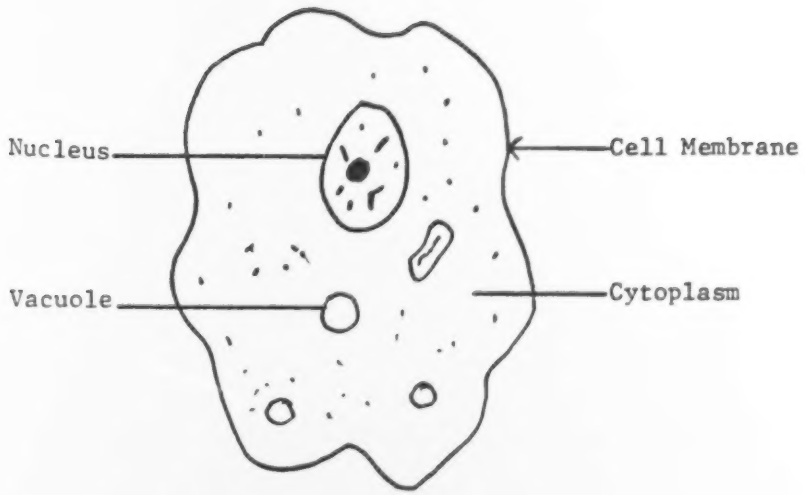
X _____

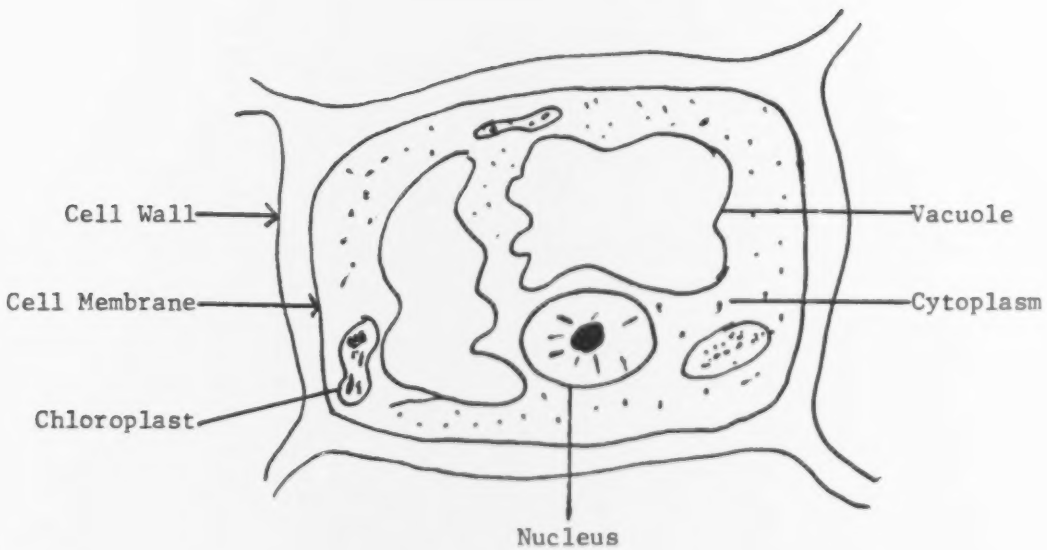
_____

X _____

ANIMAL CELL



PLANT CELL



Date _____ Name _____

Subject _____ Unit _____

Assignment _____

TRACE	COPY	RECALL
1 theory		1
2 function		2
3 nucleus		3
4 cytoplasm		4
5 vacuole		5
6 cell		6
7 membrane		7
8 protoplasm		8
9 atlas		9
10 plant		10
11. animal		

Name: _____ Date _____

QUESTIONS ABOUT THE PARTS OF A CELL

1. What is the most important part of a cell?

2. What do vacuoles hold?

3. Which 2 parts of a cell are in the cytoplasm?

4. What is the name of the outer skin of a cell?

5. What 3 parts of a cell make up the protoplasm?

6. Is protoplasm a living material?

7. Do animal cells have a cell wall?

8. Do plant cells have a cell wall?

9. What is wood made of?

10. Which has chloroplasts, plant cells or animal cells?

11. Name 2 things chlorophyll does?

Name _____ Date _____

PARTS OF A CELL

Sentence completion: Complete each sentence with the words given below.

1. The _____ is the most important part of a cell?

2. Wood is made of _____.

3. Animal cells do not have a _____ and _____.

4. The _____ is a thin outer skin of an animal cell.

5. The nucleus and the vacuoles are located in the _____.

6. The _____ is the living material of a cell.

7. _____ hold water and other materials.

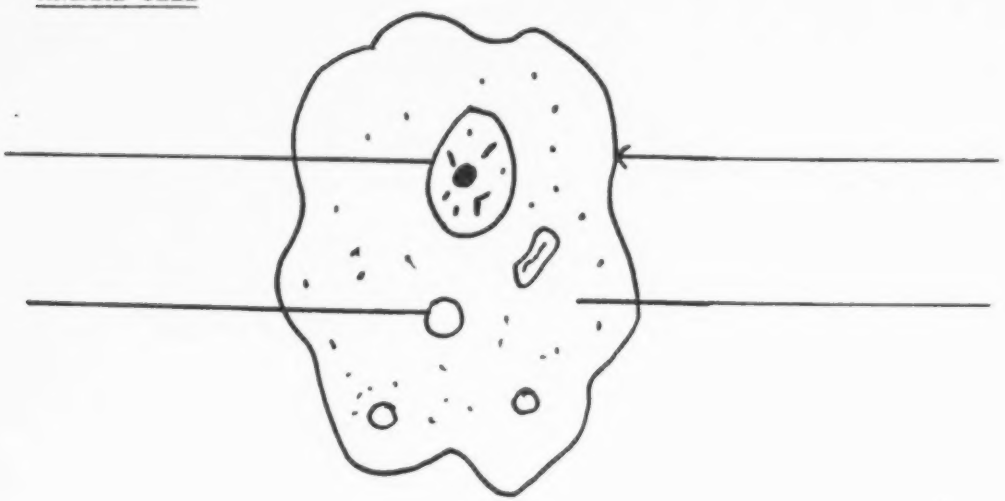
8. Chloroplasts contain _____.

Chlorophyll	Nucleus	Protoplasm
Cytoplasm	Vacuoles	Cell Membrane
Cell Wall	Cellulose	Chloroplasts

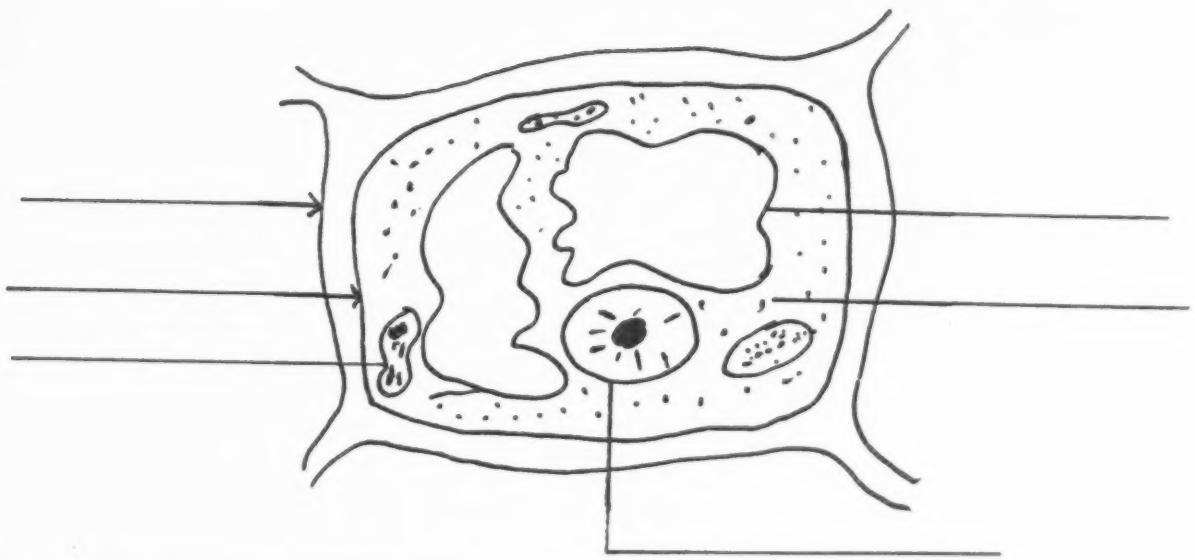
Name _____ Date _____

WORD JUMBLE

ANIMAL CELL



PLANT CELL



Unscramble these words and label the cells. Example: lecl cell

1. spytamocl
2. sunuecl
3. ocuevla
4. llce wlla
5. ebmamren llce
6. poorllchsat

Name _____ Date _____

COMPARING PLANT AND ANIMAL CELLS

Directions: Circle all the parts of an animal cell and a plant cell.

Plant Cells have	Animal Cells have
Cytoplasm	Cytoplasm
Nucleus	Nucleus
Cell Membrane	Cell Membrane
Large Vacuoles	Small Vacuoles
Cell wall (cellulose)	No Cell Wall (no cellulose)
Chloroplast	No Chloroplasts

* Answer these in complete sentences.

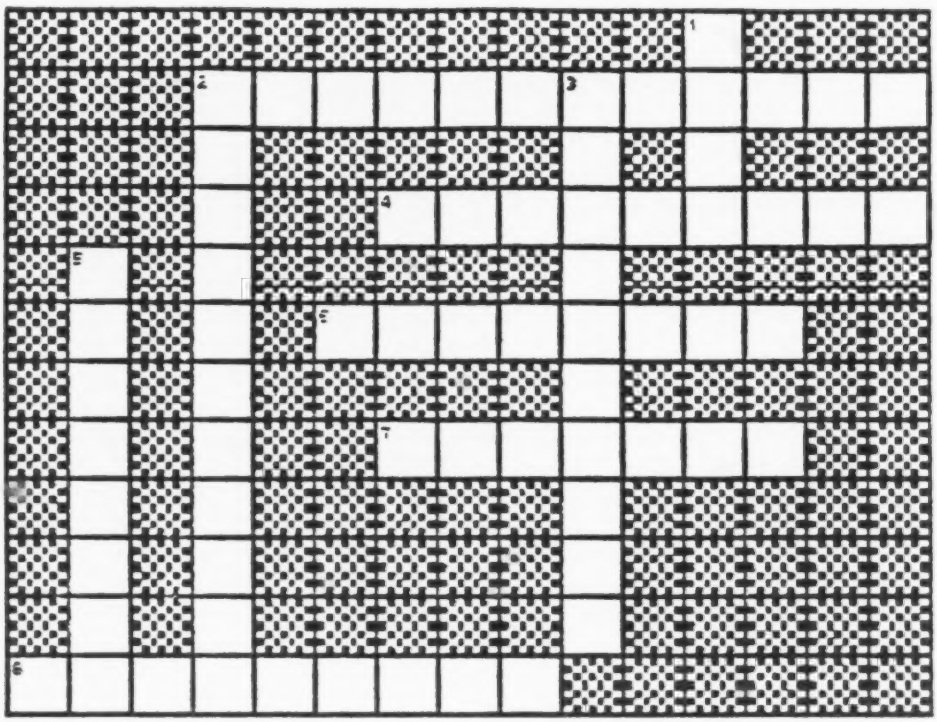
1. Name two things that animal cells do not have.

2. Name two things that plant cells have that animal cells don't.

3. Name four things that all cells have.

4. What is the difference between a plant cell and an animal cell?

RTS OF A CELL



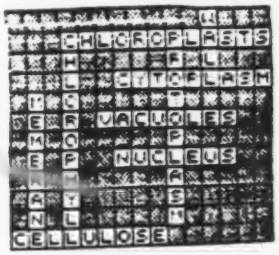
ACROSS CLUES

2. ANIMAL CELLS DO NOT HAVE --------
4. THE NUCLEUS AND THE VACUOLES ARE LOCATED IN THE ----------
6. THE --------- HOLD WATER AND OTHER MATERIALS.
7. THE ------- IS THE MOST IMPORTANT PART OF THE CELL.
8. WOOD IS MADE OF ---------.

DOWN CLUES

1. THE CELL ---- IS A HARD MATERIAL.
2. ---------- MAKES A PLANT LOOK GREEN.
3. THE ---------- IS THE LIVING MATERIAL OF A CELL.
5. THE CELL -------- IS THE THIN OUTER SKIN OF AN ANIMAL CELL.

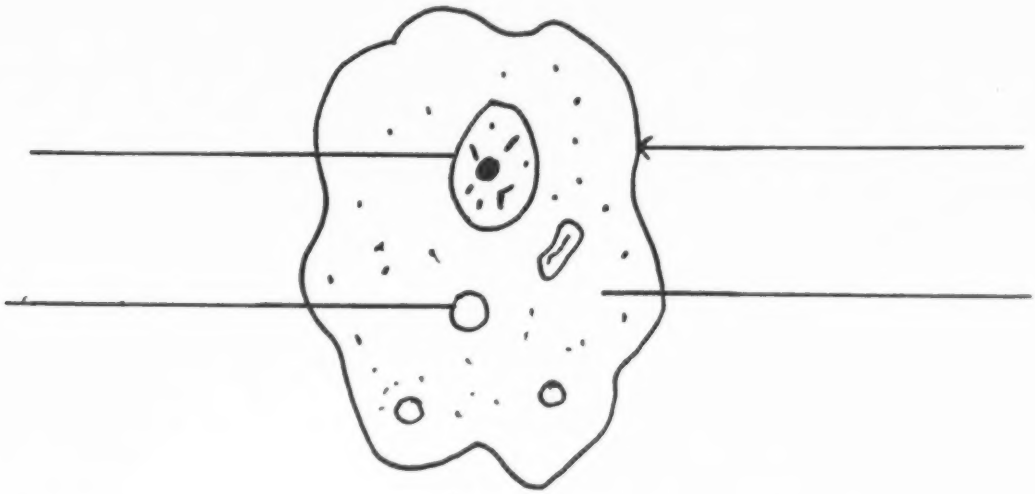
ANSWERS: PARTS OF A CELL



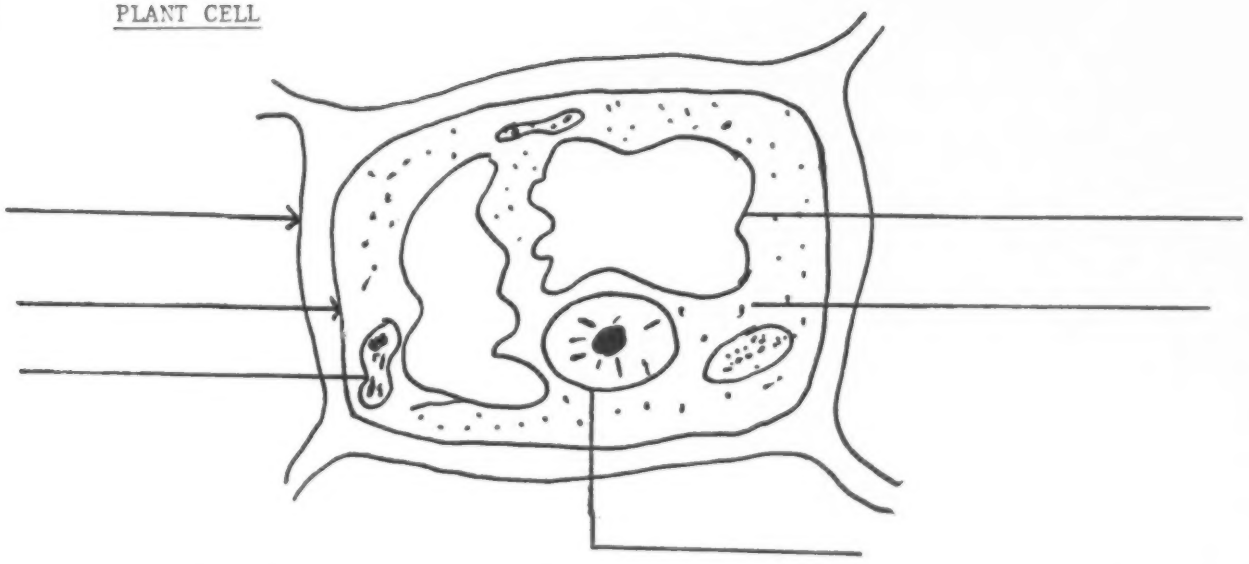
Name _____ Date _____

Directions: Label the cells.

ANIMAL CELL



PLANT CELL



WORDS TO USE

Cytoplasm	Cell Membrane	Nucleus
Cell Wall	Chloroplast	Vacuole

THE CELL WORDSEARCH

Q N Y O Z B Y D I V I D E G J W Q U A J A V B U I
B N C O W R K P C H L O R O P L A S T S R E P K G
C F L R S W I P F G X M G S R U R M A P B W M I N
O E F N U J H O A Y G F L M U I S U F J E R P S T
R L R B M I I A Q Z M M D K A O Q G A L X N Y G X
O S Z R C H L O R O P H Y L L U C N V N B O F H T
E L M V A C U O L E S S A S Y O Y G W Z D Q F L P
J N M Y A F I D N L T K N S B S R X H X R Y Y J H
M A T E R I A L T L O J A V G W Q Q C Z U I O L D
V T A S R M X U Q I L T C K N U C L E U S D B R T
R A L A R V O F O D S Y K O S K K I Q A D O C W X
T S P J D C Q L C Y D S G R T M M P O S E S M R Z
R T L T M D R M Q W R A G G E F C R V N R B E N L
Y E X X M I Y U C Y T O P L A S M O C K I V M F N
D X E N D X B B W H T Q G S B J I T T U T I B U W
M A X X K I I X T P A D U Y I W L O H O O D R N U
M N H V C U N E S F W A W S C I M P E H Z O A C W
I I T A B Q J X K K I F H F P R I L O F H L N T X
W M P U V X Q H S L Q A V B J V T A R H D P E I G
T A F W G I Q K H J J C E L L Y O S Y X M F F O P
L L P P A H U D N Q P X R K Z Q S M M G D R V N D
M S O V K X G Q G J Z K M S O V I Y N X D B O I Y
X B A V X P L A N T S L V Z Z M S B P H Z A H R I
T I F D T E H G H C B A W A J Z H K S Q Q T S H W
K B T K E A Z J E R I U O B O R M U Y P Q G P N K

WORDS

NUCLEUS
VACUOLES
PLANTS
CHLOROPLASTS
FUNCTION
CELL
MEMBRANE
ANIMALS
CHLOROPHYLL
DIVIDE
CYTOPLASM
PROTOPLASM
MATERIAL
THEORY
MITOSIS

THE CELL WORDSEARCH ANSWER KEY

PLANT AND ANIMAL CELLS

The animal cell is the basic unit of animal life. It is made up of a nucleus, cytoplasm, vacuoles, and a cell membrane. The nucleus, which is in the middle of the cell, is very important. If the cell nucleus is removed, the cell will die. The nucleus, vacuoles and the cytoplasm are held together by the thin cell membrane.

The plant cell has a nucleus, vacuole, cytoplasm and a cell membrane like animal cells. However, plant cells are different because they have chloroplasts, which hold chlorophyll, and a hard cell wall made of cellulose.

Name _____ Date _____

Subject _____ Mod _____

Cloze: Plant and Animal Cells

The animal cell is the basic unit of life. It is made up of a _____, cytoplasm, vacuoles, and a _____ membrane. The _____, which is in the _____ of the cell, is very _____. If the cell nucleus is _____, the cell will die. The nucleus, _____, and the _____ are held together by the _____ cell membrane.

The plant _____ has a nucleus, vacuole, _____ and a cell membrane like _____ cells. However, _____ cells are different because they have _____ which hold chlorophyll, and a _____ cell wall made of _____.

CLOZE WORD LIST

(For Teachers Only)

nucleus

cell

nucleus

middle

important

removed

vacuoles

cytoplasm

thin

cell

cytoplasm

animal

plant

chloroplasts

hard

cellulose

UNIT 5

ACTIVITIES FOR TEACHING

PLANTS AND

PHOTOSYNTHESIS

WORDS TO KNOW

1. forms - makes
2. supports - holds up
3. produces - makes
4. transports - carries
5. stores - keeps
6. releases - lets go; allows to leave
7. absorbs - take in
8. soil - ground, earth

WORDS TO KNOW

1. upper epidermis - a thin layer of cells that covers the top of a leaf.

2. lower epidermis - a thin layer of cells that covers the bottom of a leaf.

3. palisade layer - rows of long (U) cells just under the upper epidermis.

4. spongy cells - cells with different shapes between the palisade layer and the lower epidermis.

5. stomate - small opening on the top of a leaf.

6. stomata - more than one stomate.

7. guard cells - There are two guard cells around each stomate. They open and close the stomate.

8. cuticle - a waxy covering that makes the leaf feel smooth and look shiny.

9. vascular bundle - carries materials through the plant.

Date _____ Name _____

Subject _____ Unit _____

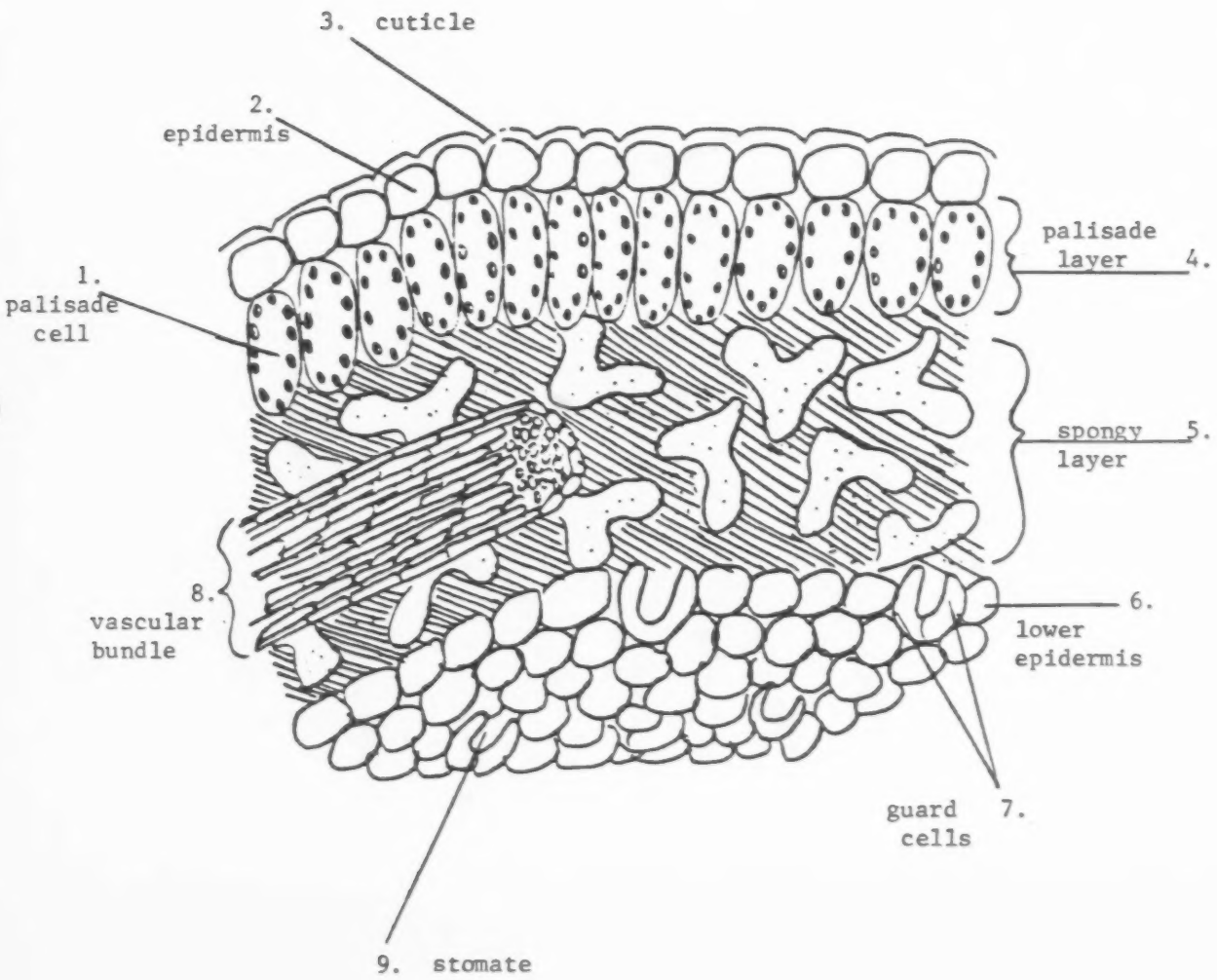
Assignment _____

TRACE	COPY	RECALL
1 epidermis		1
2 layer		2
3 spongy		3
4 stomata		4
5 stomata		5
6 cells		6
7 cuticle		7
8 vascular		8
9 bundle		9
10 guard		10

3/8 Inch

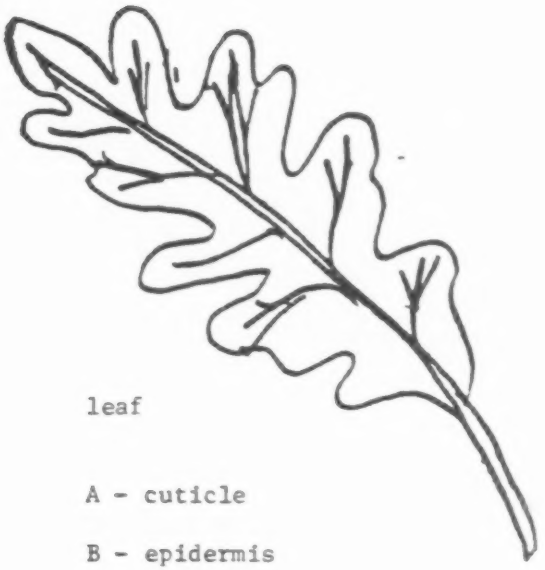
NAME _____ DATE _____

LEAF STRUCTURES

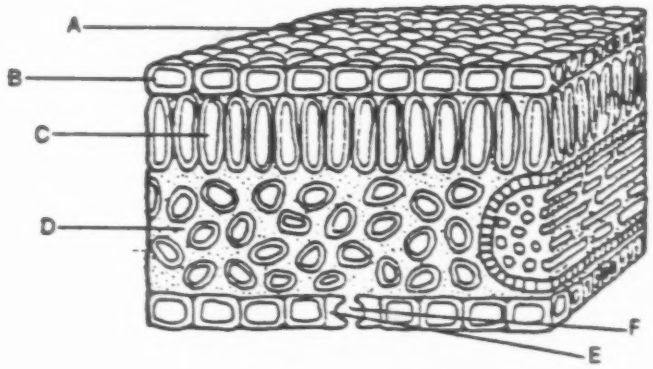


Name _____ Date _____

LEAF PARTS



leaf



layers of leaf cells

A - cuticle

B - epidermis

C - palisade layer

D - spongy layer

E - guard cell

F - stomate

Write the correct letter for each part of the leaf structure.

_____ 1. cuticle

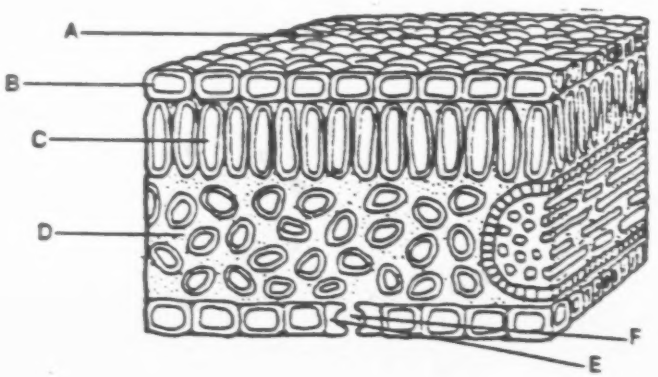
_____ 2. epidermis

_____ 3. guard cell

_____ 4. palisade layer

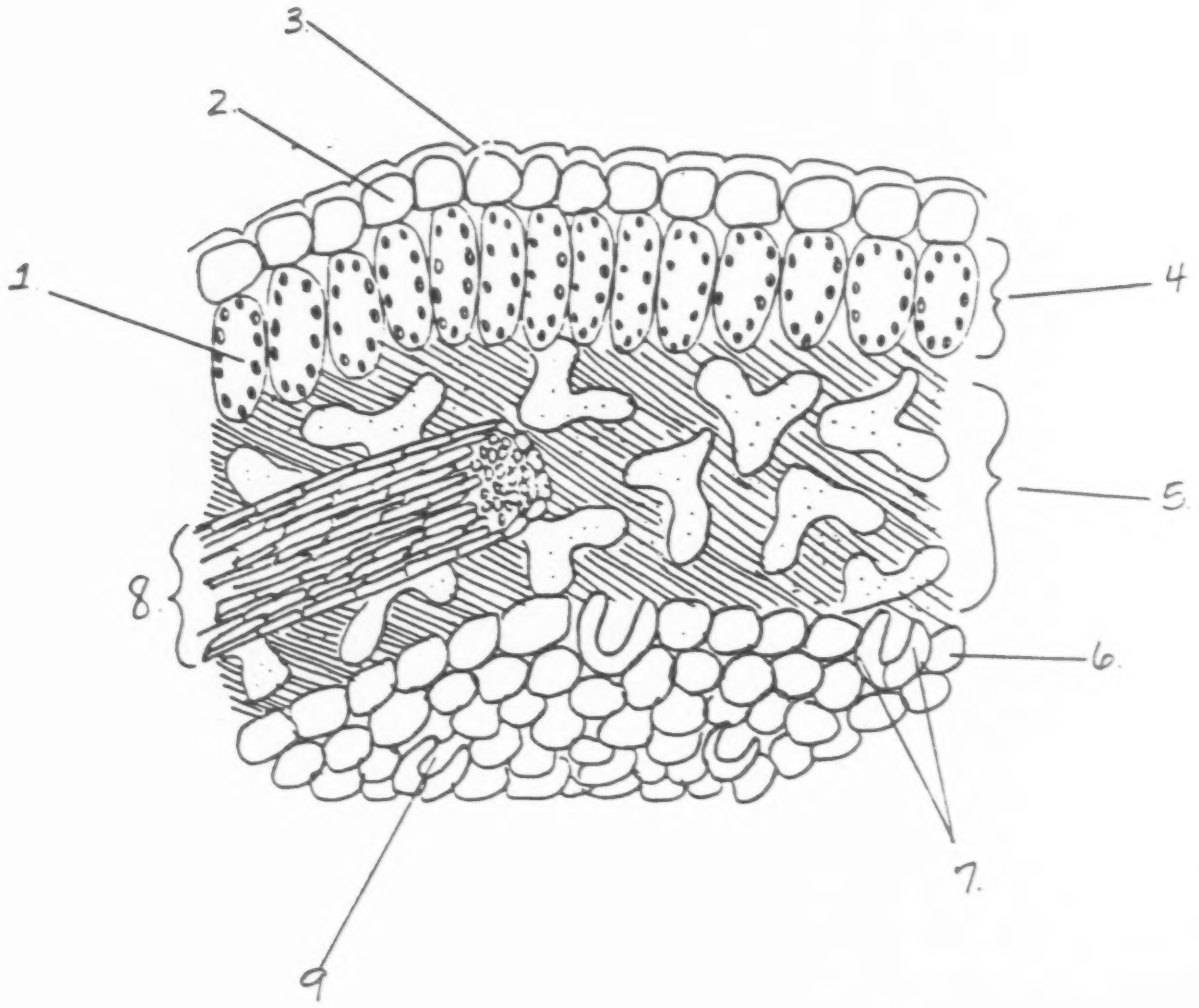
_____ 5. spongy layer

_____ 6. stomate



Name _____ Date _____

LEAF STRUCTURES



Word Jumble: Unscramble the words and label the leaf structures.
EXAMPLE. llec cell

ermisepid	lravacsu ldunbe	erlow ermisepid
amtoste	elccuti	deasipla llec
llecs argdu	gonspy erlay	deasilpa erlay

NAME _____ Date _____

THE PARTS OF A LEAF

Complete each sentence.

1. Leaves produce _____ for the plant.
2. The _____ and _____. _____ are the thin layers of cells on the top and bottom of a leaf.
3. The _____ are small openings on the top of a leaf.
4. The _____ _____ open and close the stomata.
5. The _____ makes a leaf feel smooth.
6. The _____ _____ carries materials through a plant.
7. _____ is found in the palisade layer and the spongy layer.
8. The vascular bundles are in the _____ layer.
9. The _____ layer is just under the upper epidermis.
10. Chlorophyll makes a plant look _____.

Word List

Chlorophyll	Cuticle
Stomata	Palisade
Food	Upper and Lower Epidermis
Green	Spongy
Vascular Bundles	Guard Cells

LEAVES

Leaves produce food for a plant. The parts of a leaf are the upper and lower epidermis, the palisade layer, the spongy layer, the vascular bundles, the stomata, guard cells and the cuticle. The upper and lower epidermis are thin layers of cells on the top and bottom of a leaf. The palisade layer is just below the upper epidermis. Below it is the spongy layer. Cells in the palisade layer and spongy layer contain chlorophyll. Chlorophyll gives the plant its green color. Only cells that contain chlorophyll produce food.

Answer these questions:

1. What do the leaves produce?
2. What are the parts of a leaf?
3. Where do you find chlorophyll?
4. What makes a plant look green?
5. Which cells produce food?

1. Flower - The flower forms (makes) fruits and seeds.

2. Stem - The stem supports (holds up) the leaves and flowers. It produces and transports and stores food. It also transports and stores water.

3. Leaf - The leaf is where photosynthesis takes place (happens). Photosynthesis changes carbon dioxide and water into sugar and oxygen.

4. Roots - The roots hold the plant in the ground. The roots absorb water minerals from soil and store food. Some roots like carrots and potatoes can be eaten.

Date _____ Name _____

Subject _____ Unit _____

Assignment _____

TRACE	COPY	RECALL
1 plant		1
2 stem		2
3 flower		3
4 leaf		4
5 root		5
6 supports		6
7 produces		7
8 transports		8
9 soil		9
10 stores		10

3/8 inch

DICTATION SENTENCES

1. All seed plants have roots, stems and leaves.
2. The roots hold the plant in the ground.
3. The leaf produces food for the plant.
4. The stem supports the leaves and the flowers.
5. The flower produces the fruits and seeds.

Name _____ Date _____

PLANT PARTS

WORDS TO USE

leaf	roots	plant
flower	stem	

Name _____ Date _____

PLANT PARTS

Directions: Write the functions of the parts.

1. flower-_____

2. stem -_____

_____

_____

3. leaf -_____

_____

_____

4. roots -_____

_____

_____

a. forms fruits and seeds

b. supports leaves and flowers

c. transports water, minerals, and food

d. releases oxygen

e. hold a plant in the ground.

f. stores food

g. produces food

h. absorbs carbon dioxide and water

i. absorb water and minerals

Name _____ Date _____

THE PARTS OF A PLANT

All seed plants have roots, stems and leaves. Some seed plants have flowers. Each plant part carries on a special life function. The roots hold the plant in the ground. They absorb water and minerals from the soil and store food. The stem produces, transports and stores food. It also transports and stores water. The leaves change carbon dioxide and water into sugar and oxygen. The flower produces fruits and seeds. Each plant part has its own function.

Answer these questions:

1. What do <u>all</u> plants have?
2. Do <u>all</u> seed plants have a flower?
3. Where are the roots?
4. What do the roots absorb from the soil?
5. What does the stem support?
6. Name two things the stem transports and stores.
7. What does the leaf change carbon dioxide and water into?
8. What produces fruits and seeds?

Name _____ Date _____

Complete the following sentences:

1. All seed plants have _____, _____, and _____.

2. The stem supports the _____ and _____.

3. The roots hold the _____ in the _____.

4. The roots _____ water and minerals from the _____.

5. The stem _____, _____ and _____ food.

6. The leaf changes carbon dioxide and water into _____ and _____.

7. The flower produces _____ and _____.

Name_____ Date _____

Cloze - The Parts of a Plant

Directions - Fill in each blank with the correct word.

All seed plants have roots, stems, and leaves. Some seed plants have _____. Each plant part _____ on a special life _____. The roots hold the _____ in the ground. They _____ water and minerals from the _____ and store food. The _____ supports the leaves and _____. The stem produces, transports and _____ food. It also transports _____ stores water. The leaves _____ carbon dioxide and water _____ _____ sugar and oxygen. The _____produces fruits and _____. Each plant part has its own function.

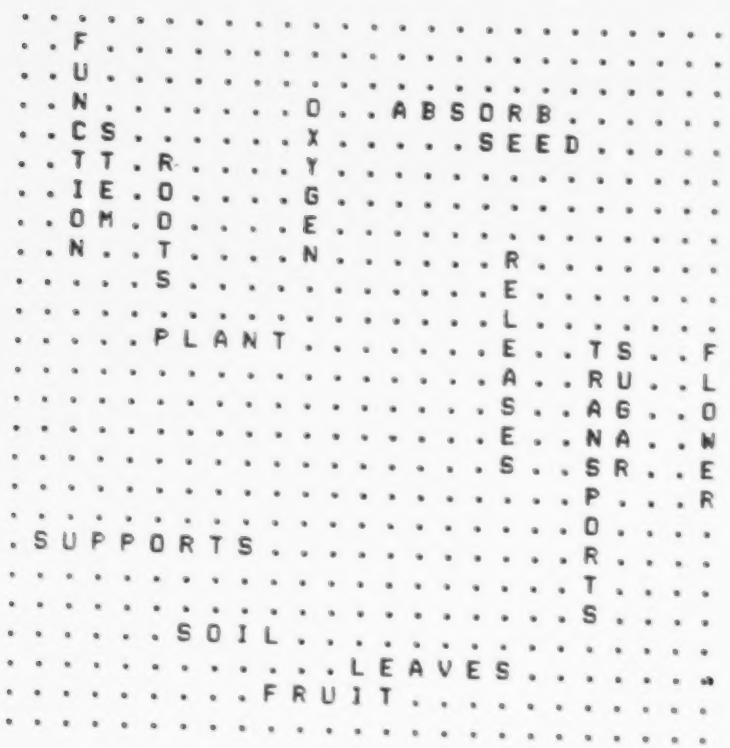
THE PARTS OF A PLANT WORDSEARCH

X Q Y G N X G P T V H N D A R Y B V K Q X L Q N A
Y M F C U J E P A Y X L P W G Z D B J J G C N E I
E V U R J L U N V G C H Z V O K M I C U Y L D N X
U O N F V G Z Y N U O L L A B S O R B G R V W E R
W L C S U H A U X M X E M E M O S E E D U J C K X
J S T T F R M M R D Y A Q A M X H J X B T G N S L
H J I E H Q U N I K G Z A R M R W W H U D C P U W
V O O M J O C T I D E S Y Q K U W Q W X X G O V H
I L N G M T U J O K N V E F Y H J R F M C F I W E
H F M E G S W F T U L V V Q Q J K E V D Q I X Y Y
E U N Z S C H P I U P K K B Y G S L N H G T H S L
W B C R I P L A N T K X M L M D J E L L T S A V F
E Z R Z C J D G J E E G N C A M G A Q L R U H M L
S M C V R T M K R Q M H E C A A N S W A A G T F O
D L L E Q Q J S O N P G K R C Q A E R D N A I K W
H N U P M T Y U P Y Y S H Q H U D S T J S R P R E
H Y E X A D K O A W E R V F A J E E R N P S Z V R
A C S V D W K L E E N U O P E R R O K S O R O E A
M S U P P O R T S W K L Z U P J O E V R R L N U D
H F S S E F T C Q U O T G Y L T L V V T T D L A U
R M T D A Q J M Z Q Z I N A G V B R X E S B J K Y
O C J T J S S O I L B U H P M M I H K N G O S T S
P C D X T M X X X F Q J L E A V E S L M Y R J G H
H X J M G U K Y P F R U I T B J J I T Q S M F G I
F A U Y F U X W T F F O A B I Q T F S K U C G U P

WORDS

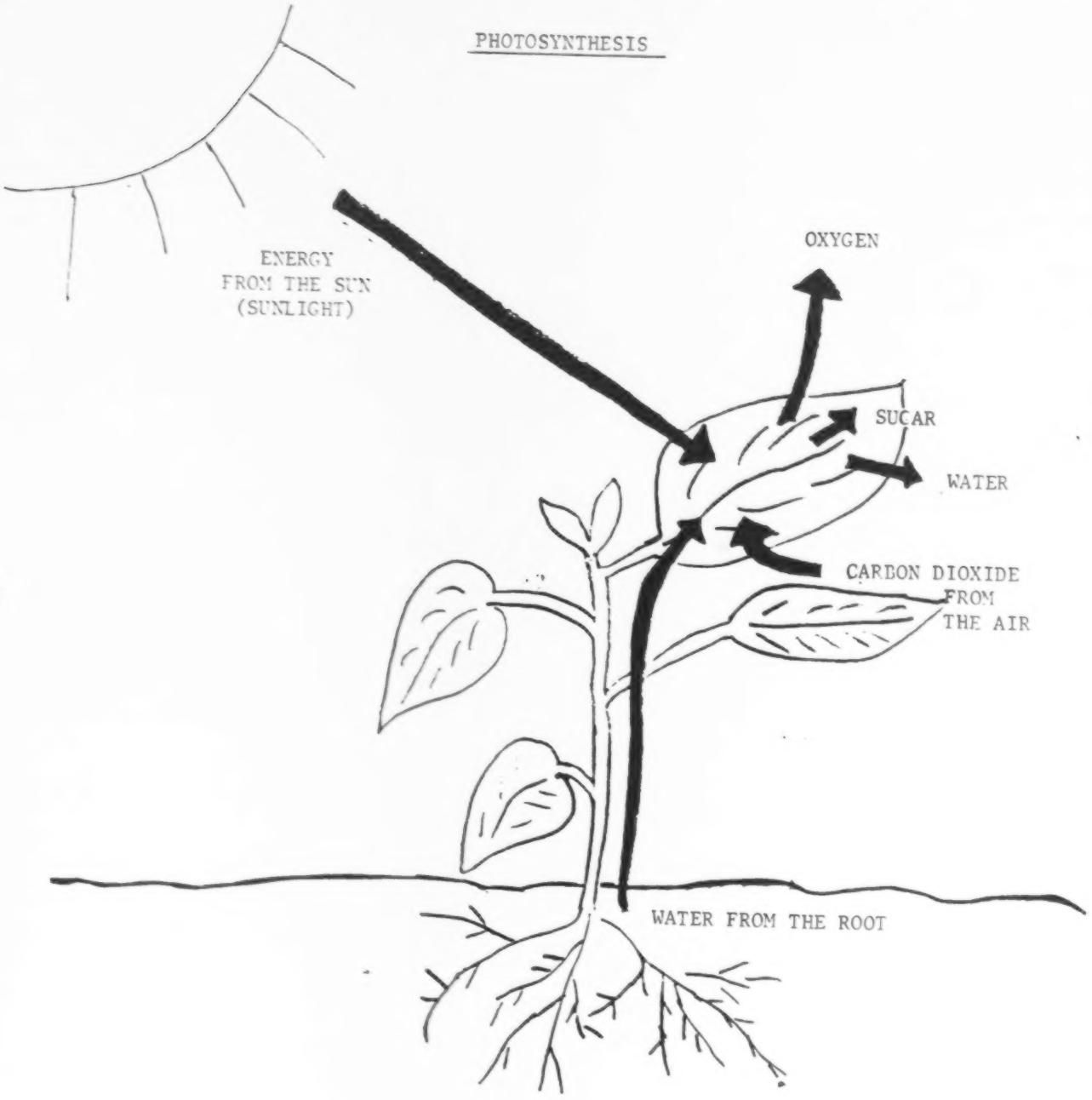
SEED
PLANT
SOIL
TRANSPORTS
FRUIT
STEM
FUNCTION
SUPPORTS
SUGAR
ROOTS
FLOWER
ABSORB
LEAVES
OXYGEN
RELEASES

THE PARTS OF A PLANT WORDSEARCH ANSWER KEY



Name _____ Date _____

PHOTOSYNTHESIS



PHOTOSYNTHESIS

Green plants make food by photosynthesis. Food is made by changing carbon dioxide and water into sugar and oxygen. Plants get water for photosynthesis from the soil. Water is transported through the roots and the stem to the leaf. Carbon dioxide enters the plant through the stomata. There must be sunlight for photosynthesis to take place (happen).

Photosynthesis is carried out by the chloroplasts. The chloroplasts contain chlorophyll. Plants must have chlorophyll to carry on photosynthesis.

Coose the correct answer:

1. Plants make food by
   - A. Chloroplasts
   - B. Stomata
   - C. Photosynthesis
2. The food plants make is
   - A. Carbon dioxide
   - B. Sugar
   - C. Chlorophyll
3. Plants need _____ to make sugar.
   - A. Oxygen
   - B. Sugar
   - C. Carbon dioxide and water
4. Photosynthesis takes place in the
   - A. Leaves
   - B. Roots
   - C. Stomata

5. Chloroplasts contain a green material called

   A. Photosynthesis

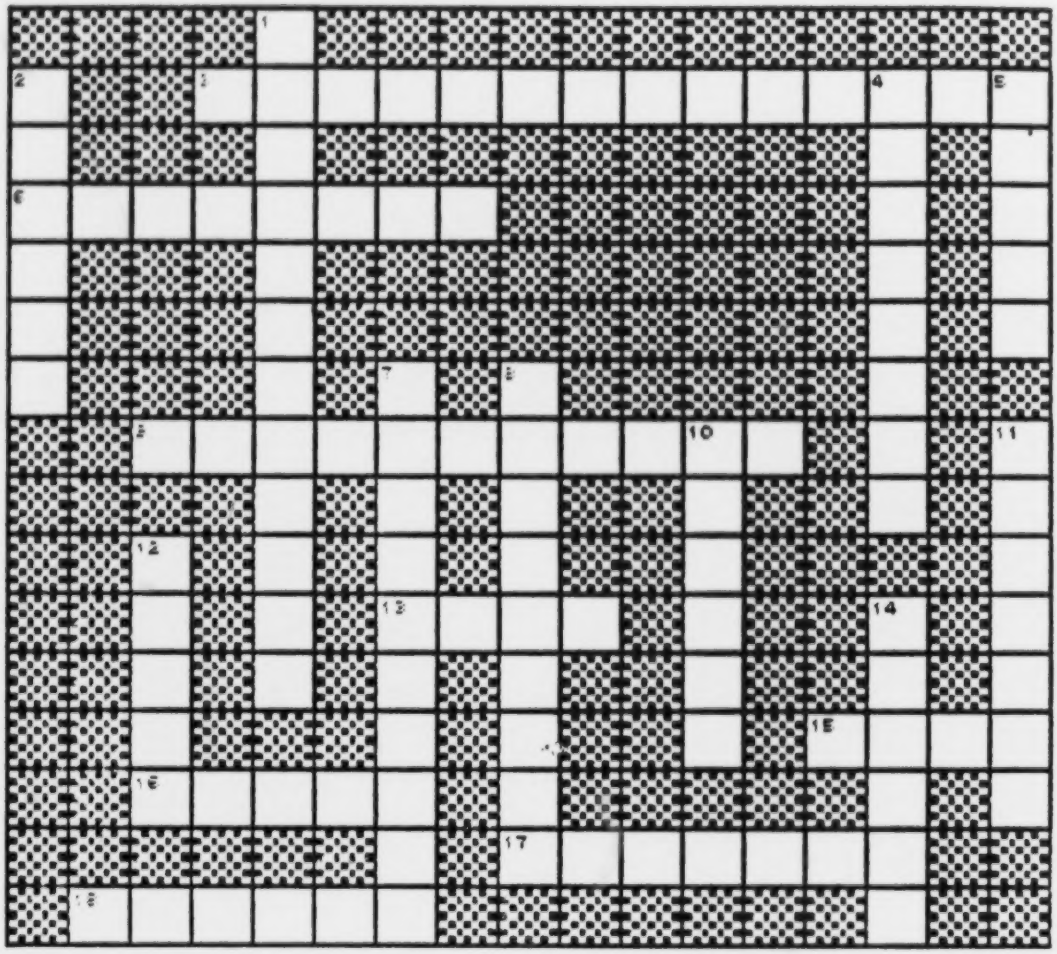
   B. Energy

   C. Chlorophyll

SENTENCES FOR DICTATION

1. Plants make sugar.
2. Plants use carbon dioxide and water to make sugar.
3. Plants need chlorophyll to carry out photosynthesis.
4. Plants need sunlight to carry out photosynthesis.
5. Photosynthesis is carried out by the chloroplasts.

PLANTS



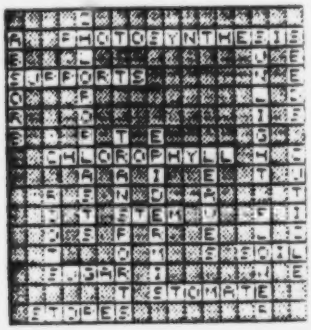
ACROSS CLUES

3. PLANTS MAKE FOOD BY ----------.
6. THE STEM -------- THE LEAVES AND FLOWERS OF A PLANT
9. THE MATERIAL THAT MAKES A PLANT LOOK GREEN IS ----------.
13. WATER TRAVELS TROUGH THE ROOTS AND THE ---- TO THE LEAVES OF A PLANT.
15. ROOTS HOLD A PLANT IN THE ----.
16. PLANTS CHANGE CARBON DIOXIDE AND WATER INTO ----- AND OXYGEN.
17. THE ------- IS A SMALL OPENING ON THE TOP OF A LEAF.
18. THE STEM TRANSPORTS AND ------ WATER AND FOOD.

DOWN CLUES

1. THE ---------- CONTAIN (HOLD) CHLOROPHYLL.
2. THE ROOTS ------ WATER FROM THE SOIL.
4. PLANTS NEED CHLOROPHYLL AND -------- FOR PHOTOSYNTHESIS.
5. FLOWERS PRODUCE FRUITS AND -----.
7. THE ROOT ---------- (CARRIES) WATER FROM THE GROUND
8. THE --------- IS A THIN LAYER OF CELLS THAT COVERS THE TOP OR THE BOTTOM OF A LEAF.
10. PHOTOSYNTHESIS TAKES PLACE IN THE ------ OF A PLANT
11. THE ------- IS A WAXY COVERING THAT MAKES A LEAF FEEL SMOOTH.
12. THE ----- SUPPORT THR STEM, THE LEAVES AND THE FLOWERS OF A PLAN
14. THE ------ PRODUCES FRUITS AND SEEDS.

ANSWERS: PLANTS



ACTIVITIES FOR TEACHING

THE FROG

The activities in this unit tandem the Frog Dissection Packet For Use With Videotape developed by Sandra M. Toth and Alan S. Eanet in March 1978. This packet should be available in your school.

WORDS TO KNOW

1. Vertebrate - a vertebrate is an animal with a backbone (spine).

2. Amphibian - is an animal with a backbone (vertebrate) that lives on land and in the water.

3. cold-blooded - the animal's blood temperature changes with the air temperature.

4. hibernate - to sleep during the winter. Life functions slow down during hibernation.

5. gills - openings on the side of the head that take in oxygen from the water.

6. respiration - the taking in of oxygen from the air or water.

7. algae - a very small plant that grows in the water.

8. metamorphosis - the change from a tadpole to a frog.

9. develop - to grow.

10. complete - finished.

Name _____ Date _____

Subject _____ Mod _____

Directions: Write V for vertebrate and A for amphibian.

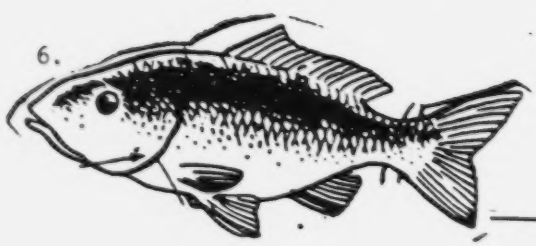
1.

2.

3.

4.

5.

6. 

Date _____ Name _____

Subject _____ Unit _____

Assignment _____

TRACE	COPY	RECALL
1 *vertebrater*		1
2 *amphibians*		2
3 *hibernater*		3
4 *gills*		4
5 *respirations*		5
6 *algae*		6
7 *metamorphosis*		7
8 *stevetop*		8
9 *exoskeleton*		9
10 *cold-blooded*		10

3/8 Inch

NAME _____ DATE _____

SUBJECT _____ MOD _____

TRACK FOR THE FOLLOWING VOCABULARY WORDS

Tracking:	T	X	Y	R	Z	A	E	F	C	G	H	K	J	K	I	L	B	N	O	P	G	O	R	S	T	U	V
1. vertebrate				W	V	Q	R	E	S	T	R	U	R	T	L	E	O	B	S	R	Y	A	M	T	P	O	E	A	R
2. amphibian				A	X	T	M	U	P	V	T	R	H	O	U	I	X	I	B	W	L	I	B	A	C	D	N	G	W
3. hibernate				A	B	C	H	D	F	E	I	G	H	B	I	J	E	K	R	L	N	M	A	O	T	P	Q	E	F
4. gills				W	X	Y	Z	O	R	G	S	T	A	Y	R	D	I	J	K	L	M	N	L	X	T	S	V	L	R
5. respiration				O	R	P	Q	Z	E	I	S	L	P	I	M	X	R	T	A	W	T	I	Q	O	L	N	I	R	Z
6. algae				Q	R	S	T	V	A	W	A	B	L	C	D	E	G	F	A	G	H	E	J	K	V	P	M	B	D
7. metamorphosis				M	Z	T	E	L	E	F	T	O	A	M	V	O	R	Y	P	H	B	O	S	D	I	L	S	N	Q
8. develop				A	B	C	D	O	P	Q	D	R	E	S	T	U	V	W	E	X	L	Y	O	Z	A	P	M	C	R
9. complete				R	C	V	D	U	T	O	X	M	Y	A	P	B	C	L	D	E	F	T	L	T	E	T	O	N	P
10. cold-blooded				C	X	O	V	L	R	Z	N	D	W	B	X	L	Y	P	O	Z	O	D	P	E	T	D	E	L	R

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Frog Metamorphosis

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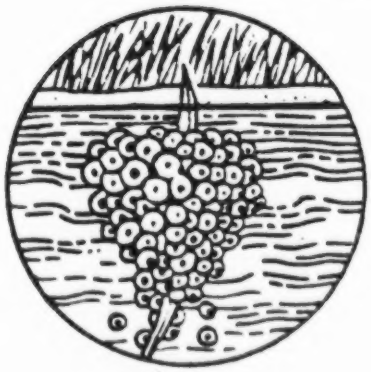
Frog Metamorphosis

1.

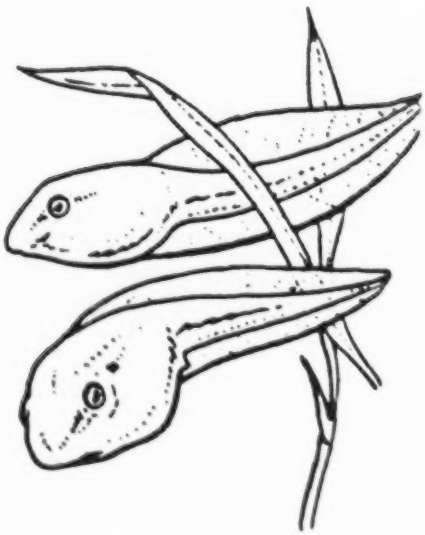


A frog lays eggs.

2.

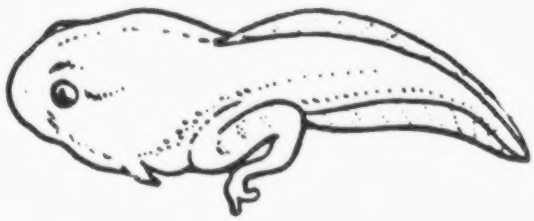
The egg develops into a tadpole with gills.

3.



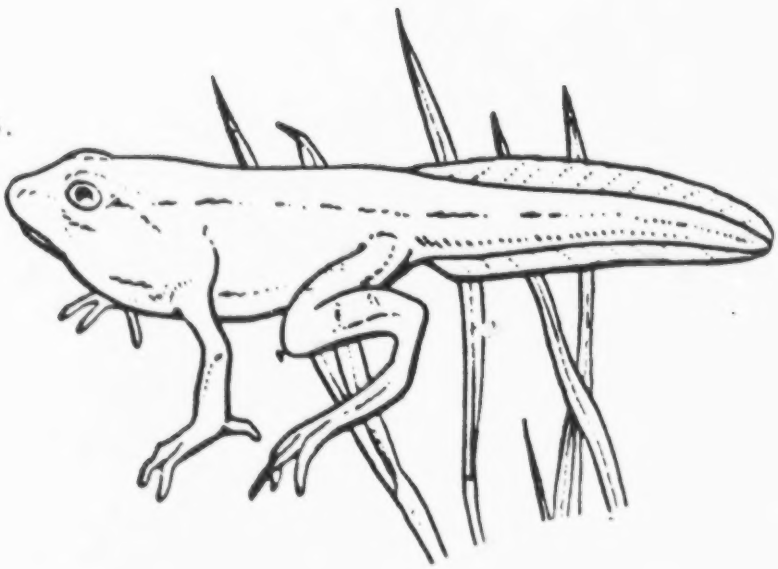
The tadpoles grow larger (bigger).

4.



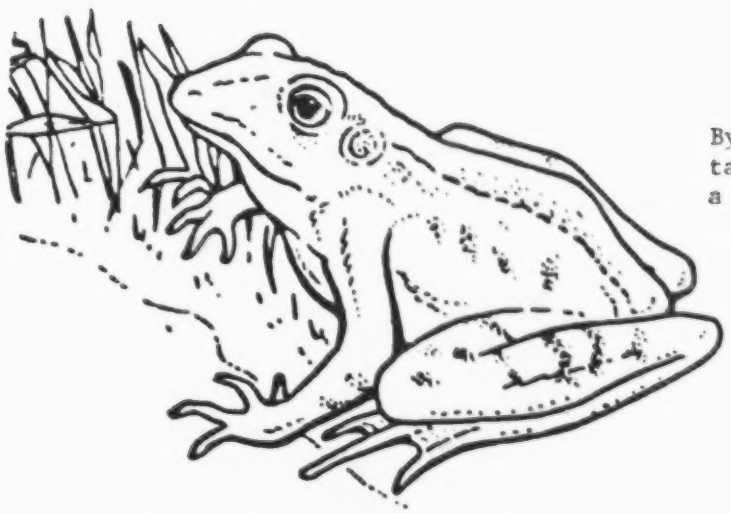
The tadpole develops back legs and lungs.

5.



The tadpole develops front legs. The tail grows shorter.

6.



By metamorphosis the tadpole changes into a frog.

DICTATION - TADPOLE

1. A frog lays eggs.
2. The eggs develop into tadpoles.
3. Tadpoles have gills.
4. Tadpoles develop back legs and lungs.
5. Tadpoles become frogs by metamorphosis.

NAME_____ DATE _____

SENTENCE SCRAMBLE

Directions: Unscramble each of the sentences.

EXAMPLE: from / amphibian / an / is / A /

A frog is an amphibian

1. eggs / A / lays / frog /

_____

2. tadpoles / The / into / develop / eggs

_____

3. gills / have / Tadpoles

_____

4. legs / and / Tadpoles / back / lungs / develop

_____

5. become / metamorphosis / Tadpoles / by / frogs

_____

Name_____ Date _____

THE LIFE CYCLE OF A FROG

Frog eggs develop (grow) into tadpoles. Tadpoles are very young frogs. They take in oxygen with their gills. They swim using their tails. As they grow tadpoles develop lungs, back legs and a large head. Next the front legs begin to grow and the tail grows shorter. Then it disappears. When all of these changes are complete (finished) the tadpole beomce a young frog. These changes are called a metamorphosis.

Answer these questions:

1. What do frog eggs develop into?
2. How do tadpoles take in oxygen from the water?
3. Do tadpoles develop lungs and legs?
4. What happens to the tadpole's tail?
5. What does a tadpole become?
6. What are tadpole changes called?

Name _____ Date _____

THE LIFE CYCLE OF A FROG

Cloze: Complete with a correct word.

Frog eggs develop into _____. Tadpoles are very young _____. They take in oxygen with their _____. They _____ using their tail. As they grow, they develop _____, back legs, and a large _____. Next the _____ legs begin to grow, and the tail grows _____. Then it disappears. When all of these _____ are complete, the _____ becomes a young _____. These changes are called a _____.

Word List: Some words may be used 2 times

1. changes
2. metamorphosis
3. lungs
4. tadpoles
5. swim
6. back
7. tail
8. frogs
9. gills
10. shorter

Name _____ Date _____

THE LIFE CYCLE OF A FROG

Cloze: Complete with a correct word.

Frog eggs develop into _____. Tadpoles are very young _____. They take in oxygen with their _____. They _____ using their tail. As they grow, they develop _____, back legs, and a large _____. Next the _____ legs begin to grow, and the tail grows _____. Then it disappears. When all of these _____ are complete, the _____ becomes a young _____. These changes are called a _____.

Name _____ Date _____

SEQUENCING: FROG METAMORPHOSIS

Rewrite the steps of frog metamorphosis in the occrect order.

The tadpole grows larger.

By metamorphosis the tadpole changes into a frog.

A frog lays eggs.

The tadpole develops front legs. The tail grows shorter.

The egg develops into a tadpole with gills.

The tadpole develops back legs and lungs.

1. _____

_____

2. _____

_____

3. _____

_____

4. _____

_____

5. _____

_____

6. _____

_____

PARTS OF THE DIGESTIVE SYSTEM

1. Mouth - catches the food.
2. Esophagus - the tube going from the mouth to stomach
3. Stomach - where food is mixed with digestive juices.
4. Liver - the organ that produces bile to break down fat.
5. Gall bladder - the round organ that stores bile.
6. Pancreas - the organ that produces insulin to break down sugar.
7. Small Intestine - the organ where food is absorbed into the bloodstream.
8. Large Intestine - where solid waste materials are stored.
9. Cloaca (Anus) - the opening that waste materials pass through to leave the frog's body.

Date _____ Name _____

Subject _____ Unit _____

Assignment _____

TRACE	COPY	RECALL
1 mouth		1
2 esophagus		2
3 stomach		3
4 liver		4
5 gall bladder		5
6 pancreas		6
7 intestines		7
8 anus		8
9 digestive		9
10 bile		10

3/8 inch

Name _____ Date _____

DIGESTIVE SYSTEM

Complete each statement with a word from the word list.

1. The frog catches food in its _____.
2. The _____ is a tube going from the frog's mouth to its stomach .
3. Digestive juices mix with food in the _____.
4. Bile is produced in the _____.
5. The _____ _____ stores bile.
6. Insulin is produced by the _____.
7. Food is absorbed into the bloodstream in the _____ _____.
8. Solid waste materials are stored in the _____ _____.
9. Waste materials leave the frog's body by the _____.

WORD LIST

1. Small Intestine	4. Large Intestine	7. Stomach
2. Gall Bladder	5. Esophagus	8. Liver
3. Cloaca	6. Mouth	9. Pancreas

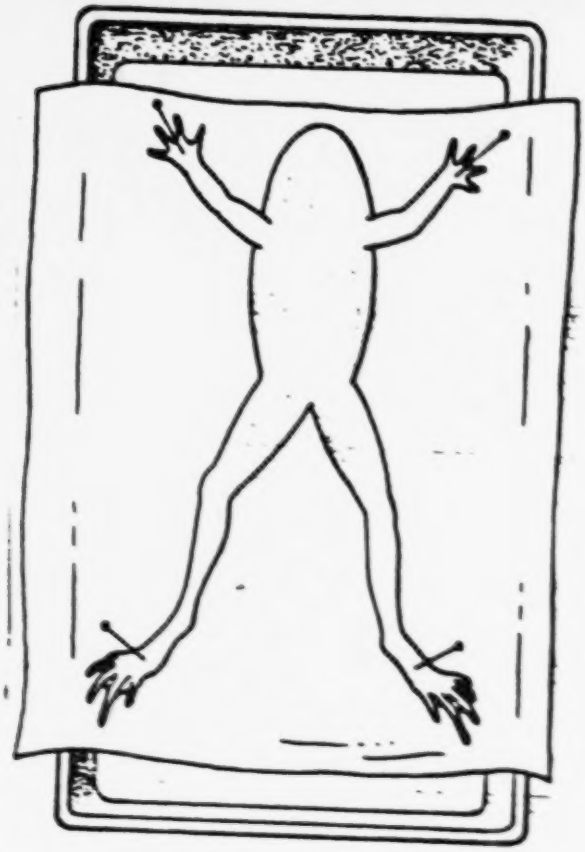
THE DIGESTIVE SYSTEM

Frogs eat small insects and worms. Food is swallowed and leaves the mouth. Then the food goes down the esophagus to the stomach. The stomach mixes the food with digestive juices. The digestive juices break down the food. The food moves from the stomach to the intestines. In the small intestine food is absorbed into the bloodstream. Waste materials that are not absorbed in the small intestine move to the large intestine. Then waste materials leave the body through an opening called the anus or cloaca.

STEPS FOR

FROG DISSECTION

1.



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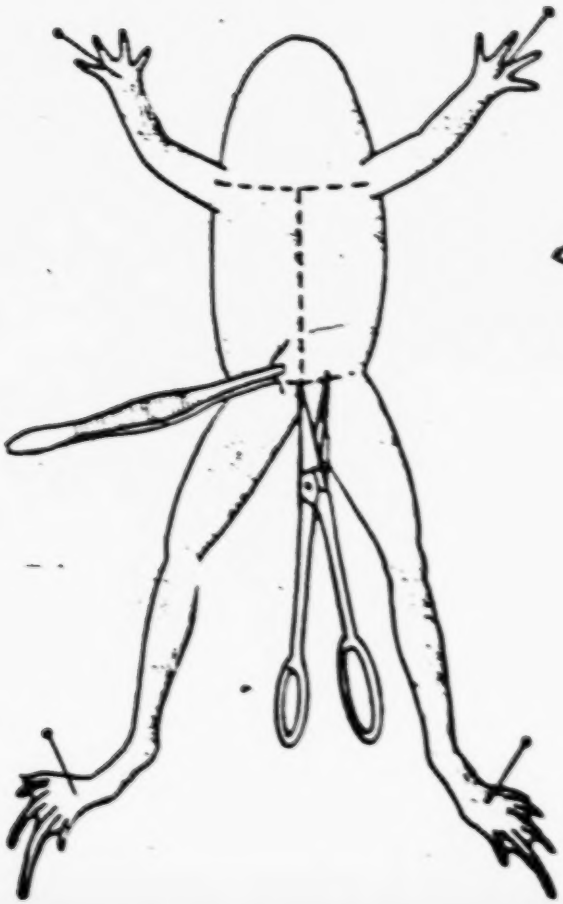
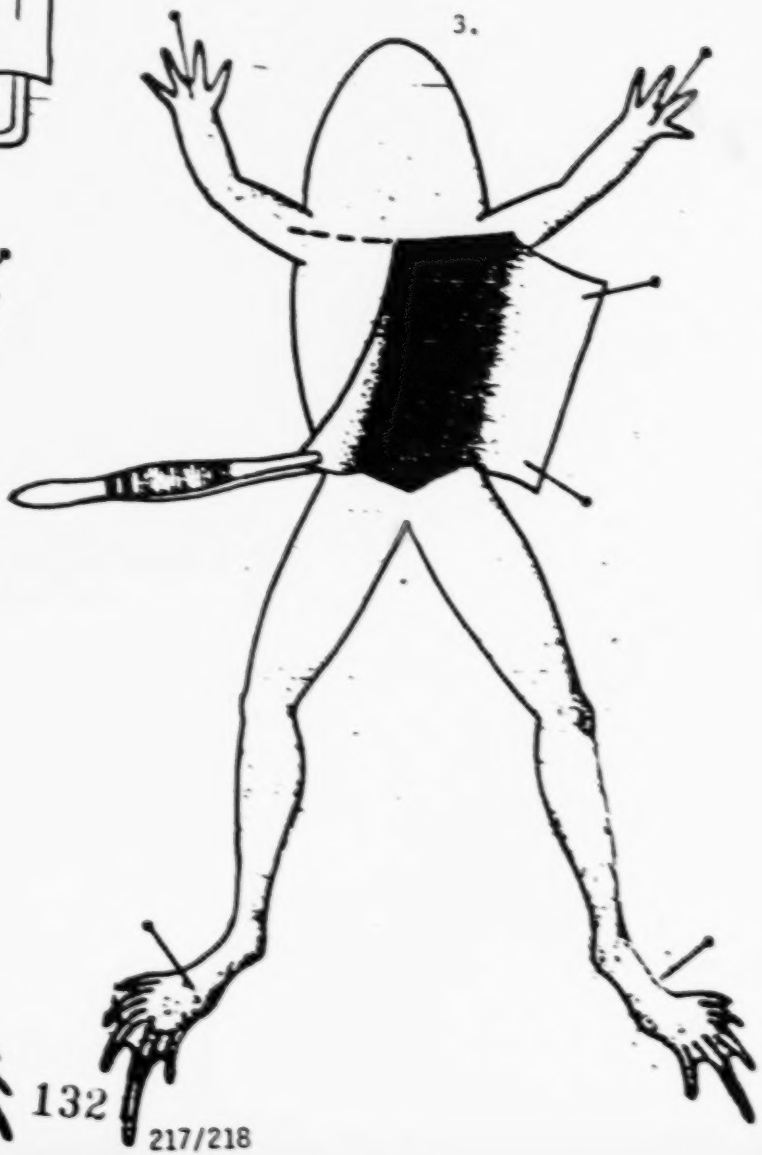
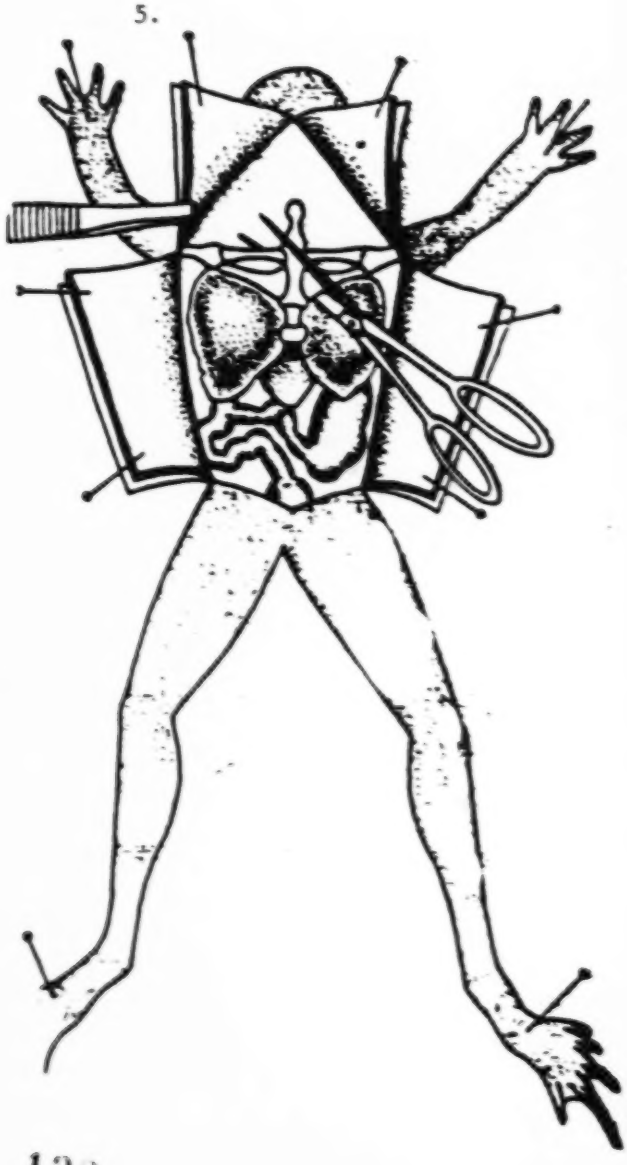


3.



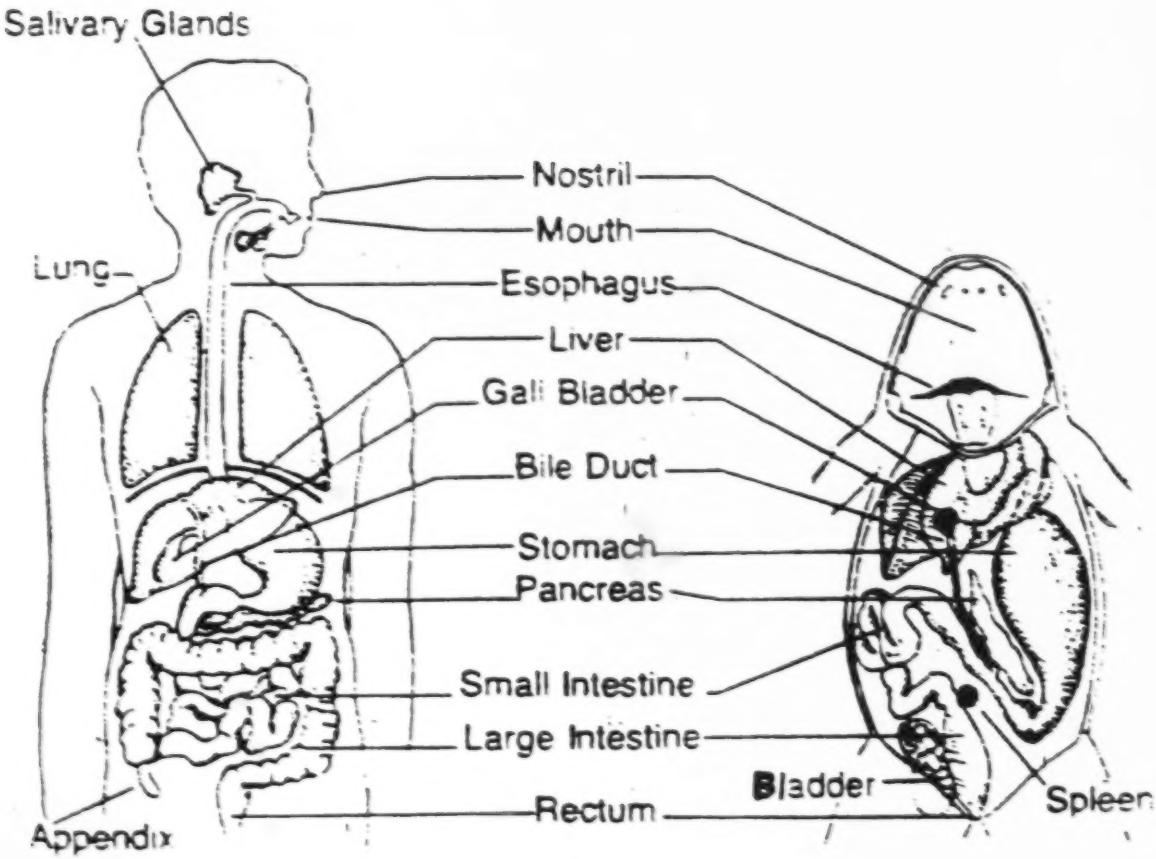
4.

5.



COMPARING THE DIGESTIVE SYSTEM

OF A HUMAN AND A FROG



Digestive System of Human **Digestive System of Frog**

EVALUATION OF THIS CURRICULUM GUIDE

This form is to be used by individual teachers to provide a reaction to the curriculum guide currently being used. At the end of each unit taught or after teaching from the entire document, please complete the form and send it to Assistant in Curriculum and Instruction, Department of Instructional Services. Your input is necessary in order to assess what revisions must be made in the document. Thank you for helping to review and revise your curriculum so that it is meaningful to your teaching.

- - - -

8. Did the format of the guide make it easy to use? Yes _____ No _____ What changes would you like to see included?

_____

_____

_____

9. Do the lessons contain realistic teaching time frames? Yes _____ No _____
If no, what should be changed?

_____

_____

10. Are there a sufficient number of teaching lessons/activities? Yes _____ No _____

11. Are there a sufficient number of available resources listed? Yes _____ No _____

12. Was the content appropriate for the level of teaching? Yes _____ No _____

13. Does the content adequately provide for Title IX (sex equality) guidelines?
Yes _____ No _____

14. Does the content adequately provide for inclusion of information about multicultural and multiracial relationships? Yes _____ No _____

15. The following suggestions would improve this document:

_____

_____

_____

_____

_____

_____

_____

_____

_____

Name (if desired) _____

School _____